Depleting natural wealth – perpetuating poverty:

Rural livelihoods and access to forest resources in Mongolia

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Initiative for People Centered Conservation

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FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Livelihood Support Programme (LSP)
An inter-departmental programme for improving support for enhancing livelihoods of the rural poor.

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The Livelihood Support Programme

The Livelihood Support Programme (LSP) evolved from the belief that FAO could have a greater impact on reducing poverty and food insecurity, if its wealth of talent and experience were integrated into a more flexible and demand-responsive team approach.

The LSP works through teams of FAO staff members, who are attracted to specific themes being worked on in a sustainable livelihoods context. These cross-departmental and cross-disciplinary teams act to integrate sustainable livelihoods principles in FAO's work, at headquarters and in the field. These approaches build on experiences within FAO and other development agencies.

The programme is functioning as a testing ground for both team approaches and sustainable livelihoods principles.

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Access to natural resources sub-programme

Access by the poor to natural resources (land, forests, water, fisheries, pastures, etc.), is essential for sustainable poverty reduction. The livelihoods of rural people without access, or with very limited access to natural resources are vulnerable because they have difficulty in obtaining food, accumulating other assets, and recuperating after natural or market shocks or misfortunes.

The main goal of this sub-programme is to build stakeholder capacity to improve poor people's access to natural resources through the application of sustainable livelihood approaches. The sub-programme is working in the following thematic areas:

1. *Sustainable livelihood approaches in the context of access to different natural resources*
2. *Access to natural resources and making rights real*
3. *Livelihoods and access to natural resources in a rapidly changing world*

This paper draws on field studies undertaken recently in five rural areas of Mongolia, covering all ecological zones from montane and northern taiga forest to arid forest in the Gobi. The studies were designed, with the sustainable livelihoods approach as the analytical framework, to contribute to knowledge on forest-people interaction. While extensive and systematic work has been undertaken on rangeland and livestock issues in Mongolia, a knowledge gap existed on the links between rural livelihoods and forest resources.

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GLOSSARY

Aimag	province in Mongolia, made up of Soums
Bag	smallest territorial/administrative division in rural Mongolia
Soum	district in rural Mongolia, made up of Bags

1. INTRODUCTION

This paper represents part of an area of work in support of enhancing access to land and forest resources in support of rural livelihoods in Mongolia. Information on the work is provided through a series of LSP Working Papers.

- 30: Improving the legal framework for participatory forestry: Issues and options for Mongolia by Jon Lindsay, James Wingard and Zoljargal Manaljav.
- 31: Depleting natural wealth – perpetuating poverty: Rural livelihoods and access to forest resources in Mongolia by New Zealand Nature Institute.
- 32: Rural livelihoods and access to forest resources in Mongolia: Methodology and case studies of Tsenkher Soum, Ulaan Uul Soum, Binder Soum, Teshig Soum and Baynlig Soum.

1.1 Overview

This synthesis report draws on field studies undertaken recently in five rural areas of Mongolia, covering all ecological zones from montane and northern taiga forest to arid forest in the Gobi. Supported by the FAO Livelihoods Support Programme, the studies were designed to contribute to ongoing activities in developing participatory forestry and to inform policy development for an enabling legal framework for community based natural resource management. The work was undertaken by IPECON, Initiative for People Centered Conservation of NZNI, New Zealand Nature Institute.

The studies were designed, with the sustainable livelihoods approach as the analytical framework, to contribute to knowledge on forest-people interaction. While extensive and systematic work has been undertaken on rangeland and livestock issues in Mongolia, a knowledge gap existed on the links between rural livelihoods and forest resources.

Findings presented are based on participatory analysis of livelihood strategies and outcomes, of livelihood assets, and of institutions governing resource access with local communities and other stakeholders. Study sites were selected to sample difference in ecological zones, to capture urban-rural distinctions, to recognize silvopastoral linkages and to correspond to pilot sites of the FAO supported project on participatory forestry in Mongolia. Before presenting findings, an overview is provided on recent forest resource assessments, on the history of forest governance in Mongolia and on the dimensions of poverty in the country.

Our findings document and explain, with case studies and documentation from participatory analysis, the downward cycle of resource depletion and descend into poverty that is in action.

A commonality among all study sites is the alarming degradation of natural resources while poverty is being perpetuated. Disparities in ability to add value and reach markets determine the benefits that the poor and non-poor can derive from forest resources.

While their resource base and potential source of wealth is undermined, the poor receive low incomes from natural resources while the better-off are able to gain higher profits from the same resource. Current laws, regulations and enforcement practice that govern access to resources further enhance disparities in livelihood outcomes.

Access to resources and ecosystem services, crucial for local livelihoods, is increasingly under threat by interests of the extractive industry. In local areas affected by such resource conflicts, rural communities are left with little benefits at best, and with loss of their resource base and impacts on the local environment.
In the same way as current governance disadvantages the poor in favor of the already better-off, and outside interests in favor of local communities, it also disadvantages local governments in favor of provincial and central government. It is therefore counterproductive to rural development, as it does not promote generation of local revenues available for investment in rural services and infrastructure.

Reviewing the findings, the significance of building social capital and of extending rights to secure tenure of resources and benefits to local knowledge holders in developing sustainable practice of community based natural resource management is emphasized.
Drawing on the findings on forest ecosystem services for pastoral livelihoods, both in northern and arid forest, the case for inclusion of pastoralists in participatory forestry is argued. It is recommended to consider the real value of resources and their economic potential for the poor in pro-poor policy and strategy development.

1.2 Background of the study

NZNI/IPECON (New Zealand Nature Institute/Initiative for People Centered Conservation) was contracted by FAO to design and undertake a study on the role that forests currently play in livelihoods in rural Mongolia and on the potential roles that forests could play if local communities acquire stronger access to and use of the resources. Findings of the study are to inform policy recommendations by the project TCP/MON/2903 on Participatory Forestry in Mongolia.

The study complements ongoing FAO supported activities, both international and in-country, namely the Sub-Programme 3.1 under the FAO Livelihoods Support Programme (LSP) and FAO's ongoing support to the development of participatory forestry in Mongolia under the project TCP/MON/29O3. The objective of TCP/MON/2903 is "to develop an enabling framework to encourage the active participation of stakeholders, more specifically the rural population, in forest management to improve their livelihoods through sustainable forest utilization." The central focus of the TCP project is on developing and testing a "participatory forestry concept," in essence a conceptual and strategic framework for enabling and designing local forest management by community-based groups. In the analytical and consultative work leading up to the development of the concept, several important knowledge gaps concerning the relationship of forests to local livelihoods have been noted. In general, little systematic study of this relationship has taken place. There has been very extensive work in Mongolia on livelihoods issues, carried out by FAO and others, mainly focusing on rangeland and livestock issues. That learning so far has not penetrated the forestry sector to a great degree. And yet, it is clear

that the appropriate design of participatory forestry mechanisms, policies and laws requires a solid understanding of the relationship between people and resource, the extent to which the resource is or could be important for improving livelihoods, and the actual aspirations and incentives of concerned communities in this regard (FAO 2005 a).

With this in mind, the research work for the case studies introduced here was designed to fill existing knowledge gaps and to contribute to a better understanding of forest-people interactions in Mongolia through livelihoods analysis.

The report presented here seeks to complement the body of work on Mongolian forests and forest management, by placing emphasis on the role of forest resources in the context of a very predominantly pastoral, and largely mobile pastoral, resource management system, and by pointing to the significance of participation of pastoralists in the management of forest resources based on traditional cultural and livelihood needs and silvopastoral practice.

The report seeks to enrich policy analysis by providing details derived from participatory analysis with communities, households and individuals that do justice to rural reality and diversity, as well as by identifying common issues. It seeks to contribute to pro-poor policy development that recognizes the significance of common property resources for the poor and the potential of ecosystems as a source of "wealth of the poor".

1.3 Mongolia's ecological zones and forests

Mongolia's territory covers several ecological zones within a relatively intact sequence of sequence of ecosystems in Inner Asia, reaching from northern taiga forests to arid desert.

The zones are identified as High Mountain (or Montane) Zone, Taiga (or Boreal Forest) Zone, Mountain Forest Steppe Zone, Steppe Zone, Desert Steppe Zone and Desert Zone (Box 1). Mongolia's climate is extreme continental with significant seasonal and daily temperature variations, and marked differences within the country. The two most extreme weather stations, in Ekhiin Gol in the Gobi desert and in Rentchinlkhumbe west of Lake Huvsgul, have recorded (over 30 years) mean monthly temperatures for January of – 11.8 °C and – 32.0 °C respectively, and for July 25.2 °C and 12.8 °C respectively (World Bank 2004).

Box 1 Description of Ecological Zones in Mongolia

Montane Zone. Many of Mongolia 's mountain areas show signs of previous Ice Ages, with U-shaped valleys and boulders left behind by retreating glaciers. The climate in the high mountain zone is extremely cold and there is a short growing season. The zone located above tree line is characterized by tundra, alpine-sedge meadows, highland swamps and lichen-covered boulder fields.

Taiga (forest) Zone includes the southern edge of Siberia 's vast taiga forest, the largest continuous forest system on earth. This zone occurs only in northern Mongolia , where it is found in the Khentii Mountains , in the mountainous terrain near Lake Khuvsgul , on the north and east sides of the Khangai Mountains and some parts of the Khan Khukhii range. The taiga zone experiences more precipitation (300-to 400 mm annually) and lower temperatures than most of Mongolia, with cold, snowy winters and cool, rainy summers.

Mountain Forest Steppe Zone occurs in the lower elevations of the Khentii, the Khangai, the Mongolian Altai mountains, in the Orkhon and Selenge river basins, and in the Khyangan mountains. Mixed coniferous forest found on cooler, moister northern slopes, while steppe vegetation predominates on other slopes. The mountain forest steppe zones is one of the most heavily populated areas in Mongolia.

Steppe Zone covers nearly the entire far eastern part of Mongolia, extending west in a narrowing band just south of the Khangai and Khan Khukhii mountains all the way to the Depression of the Great Lakes. Mongolia 's steppe lies in the eastern part of the vast plain that begins in Eastern Europe and reaches to the steppes of Manchuria . The steppe zone includes a distinctive group of flora and fauna. In the central and western areas of the country, the steppe provides many of the nation's most important grazing lands.

Desert Steppe Zone includes the Depression of the Great Lakes , the Valley of the lakes, and most of the area between the Khangai and Altai mountain ranges, as well as the eastern Gobi area. The zone includes many low-lying areas, soils with saltpans, and small ponds. The climate is arid with frequent droughts and annual precipitation of 100-125 mm, and frequent strong winds and dust storms strongly influence the areas vegetation.

Desert Zone The Gobi is one of the world's great deserts, occupying much of southern Mongolia and northeastern China. Vegetation is sparse here, and the zone displays a remarkable variety, from rocky mountain massifs to the flat pavement-like areas of the super-arid desert, from poplar-fringed oases to vast outwash plains and areas of sand dunes. These areas provide habitat for many of Mongolia 's threatened species, including the wild camel, Gobi bear, and wild ass. Climate is extreme. Precipitation may fall only once every two to three years, and averages less than 100 mm annually. Temperatures climb as high as 40° C in summer, and fall as low as -40°C in winter. During the spring and fall, dangerously strong winds buffet the area with dust storms and wind speeds up to 140 km/hour, 0.297, 19

The average elevation of Mongolia is 1580 meters above sea level, and 80 % of the country lies above 1000 meters. The total land area of Mongolia is approx. 1.565.000 km² of which approximately 178,500 km^2 (11 – 12 %) are forest covered. Two broad types of forests dominate: northern coniferous forest in the montane, taiga and mountain forest zones, and saxaul forest in the desert steppe and desert zones. In the taiga and forest steppe zone, particular in its eastern region, broad-leaf forest also occurs. Larch (Larix sibirica) and Siberian Pine (Pinus sibirica) are species of the montane, taiga and forest steppe zone. Scots Pine (Pinus sylvestris) grows in taiga and forest steppe, but not at the

higher altitudes of the montane zone. Siberian Spruce (Picea obovata) and Siberian Fir (Abies sibirica) are typical for sub-alpine montane forest. Broad-leaf forest species of the taiga and forest steppe include Birch (Betula platyphylla), Aspen (Populus tremula) and Poplar (Populus diversifolia). In the desert steppe and desert of the arid south and southwest, Saxaul (Haloxylon ammodendron) is the primary species. Secondary species of the dryland forests are Tamarix and Caragana.

Loss of forest resources since the 1950s is estimated to be over 2 Million hectares and is attributed to unsustainable, legal and illegal, harvesting for timber and fuel wood, forest fires, mining operations, grazing pressure and long-term climate changes (World Bank 2004). The rate of loss has increased after 1990 to about 60.000 hectares annually (FAO 2005 b).

Table 1 Ecological Zones, Forest Types and Species in Mongolia

Ecological Zones	**Species**	**Forest Type**	**Approx. area** million km ²	**Approx. % of total territory**
Montane	Siberian Spruce (Picea obovata) Siberian Fir (Abies siberica)	Northern Coniferous Forest	0.125	8
Taiga Forest	Larch (Larix sibirica) Siberian Pine (Pinus sibirica) Scots Pine (Pinus sylvestris) Birch (Betula platyphylla) Aspen (Populus tremula) Poplar (Populus diversifolia)	Northern Coniferous Forest and Broad-leafed Forest	0.063	4
Mountain Forest Steppe			0.344	22
Steppe		Saxaul Forest	0.407	26
Desert Steppe	Saxaul (Haloxylon ammodendron) Tamarix (Tamarix spp.) Caragana (spp.)		0.329	21
Desert			**0.297**	19
	Source: World Bank 2004			

1.4 Livelihoods, Poverty and the Governance of Natural Resources – past and present

Forest resources play an important part in livelihoods, and changes in the forest sector have had grave socio-economic impacts. Before 1990, approximately, 2.2 million cubic meters of timber were produced annually, and forest products contributed to six percent of Mongolia's GDP. The contribution of the industry to GDP is less than one percent (although the contribution to the informal economic sector may be higher).

Employment in the forest industry fell from 12,000 to less than 6,000. The population, previously employed in the state enterprises, has either migrated, resorted to other forms of (temporal) employment or to (informal and primitive) logging and small-scale sawmill operations. Consequently, there is a serious and negative impact on the level of poverty. Communities in the forested areas of Mongolia are severely affected by the on-going forest degradation. They heavily rely on fuelwood availability, on lumber for household use, and on wood for production of traditional gers (Mongolian felt tents).

Forest provide a range of "ecological services", not only to local communities but to a greater population, rural and urban, in the form of soil conservation, watershed protection, shelter for livestock, wildlife habitat, and are a resource base for the rapidly developing eco-tourism industry.

The arid Saxaul forests are very significant as reserve and winter pasture for camel. Traditional protected areas, grazing reserves and sacred sites revered by local communities are often in forest areas. Non-timber forest products, both floral and faunal, are traditionally important for household and subsistence use, and in recent years have been harvested on an hitherto unknown scale for lack of other income sources and opportunities for value addition.

Today, all forests in Mongolia are state-owned. However, government institutions for forest management have undergone changes and are weak. A trained previous cadre of forest management professional is not employed in the sector currently, and a provision to train rangers and inspectors in the frontline of law enforcement does not exist.

Forest management in Mongolia, under current conditions, remains largely ineffective, and clear institutional responsibilities are lacking. Forest administration is partly decentralised and the *soum* governor is empowered to grant licenses and concessions according to quotas given by the Ministry of Nature and Environment (MNE), to individuals or economic entities, and collect the respective fees. However, control of the location of logging and the amount of extracted wood is very insufficient and illegal logging is rampant.

The Law on Forests, enacted in 1995 and last amended in 2002, establishes the basis for management by identifying "strict", "protected" and "utilization" zones rendering 90 % of forest area legally inaccessible for timber harvesting,

Table 2	**Forest Management Zones in Mongolia**		
Zone	Definition	Management	% of total forest area
Strict Zone	Sub-alpine forests. Forests within special protected areas, national parks, nature reserves, monuments	Maintain "natural features" and "ecological balance" (except fire and pest suppression) Limited use of pine nuts and shed antlers	47
Protected Zone	"green" belts around water sources, and cities, settlements. Slopes >30 %, forest < 100 ha, saxaul forest,	"clean and care.. to aid in protection, growth and regeneration" Regulated fuel wood collection and non-timber forest products permitted	46
Utilization Zone	All forest not in strict and protected zones	Commercial timber harvest, permit fee to government	7
Source: World Bank 2004			

In contrast to the reality of rampant illegal use of forest resources, the National Programme on Forestry, developed in 2001, actually marked a shift from utilization to conservation. The programme also addresses social welfare issues, and citizens' participation in forest management is viewed as an important strategy. The government has taken steps to engage communities in conservation, and the laws on Khorshoo, on Nokhorlol, on NGOs and on Buffer Zones were first steps to give communities a stake in local resources (FAO 2005 c). A recent amendment to the Law on Environmental Protection and the Law on Forests is further defining the institutional framework for community-based natural resource management. Communities throughout the country are organizing in various forms of use groups and are striving for tenure security over local natural resources, particularly in the face of increased issuance of licenses for resource exploitation to corporate and outside interests.

The current legal framework still has insufficient provisions to implement community forestry and to facilitate benefits for communities as managers of forest resources.
The main issues remaining to develop an enabling legal framework pertain to tenure security, rights of forest user groups, and dispute resolution (FAO 2005) (see table 3).

Table 3 Legal Principles for Community-Based Management, Lessons from International Experiences and Options for Mongolia
The law needs to provide a mechanism for granting or recognizing the rights of community-based organizations to manage forest resources
The law needs to enable local groups to engage in forest activities that are important to them for their livelihoods
The law needs to provide an appropriate mechanism for local groups to make management decisions about their forest resources
The law needs to define the criteria and process for group membership appropriately and fairly
Forest users need flexible, easy-to-use and appropriate mechanisms for forming legal entities
The law should not place unnecessary restrictions on how a community-based organization uses or invests the benefits it receives.
Rights of forest user groups need to be of sufficient duration
Rights of forest user groups need to be exclusive.
Rights holders need to feel secure that their rights will not be terminated unfairly or arbitrarily
Rights need to be enforceable and enforced
Rights, responsibilities and sanctions need to be clearly defined
The law needs to provide a fair and transparent process for determining what area will be assigned to a particular group.
The legal framework should provide a fair and efficient process for resolving disputes within groups or between groups and outsiders (including government).
The law needs to provide a meaningful opportunity for wider public participation at various levels on a range of forest issues.
Necessary steps should be taken to strengthen the capacity of all stakeholders to understand and use the law.
Source: FAO 2005 c

Poverty in Mongolia is multi-dimensional and characterized by a high degree of vulnerability. Institutions, policy and practice for natural resource management are not enabled to address poverty-environment links effectively. The Economic Growth Support and Poverty Reduction Strategy (EGSPRS) states that "there are still outstanding challenges in the environment aspects of the strategy, with inadequate attention paid to institutional development, forests and wastewater" (World Bank 2003). In the strategy paper, worsening living standards and poverty are directly linked to environmental causes. The effects of Dzud (severe winter weather), forest fires and parasitic infestations were exacerbated by land-degradation through decline in pastoral mobility while the number of herding households increased during the 1990s. In addition to increased vulnerability through environmental insecurity, social insecurity has risen through the weakening of traditional kinship relationships. Between 1994 and 2000, the level of poverty did not rise significantly, but the depth of poverty, as well as disparities increased (EGSPRS, World Bank 2003). In the same period, middle-class household declined and the number of poor and very poor households increased.

The Participatory Poverty Assessment and Monitoring Study, conducted in 2004-2005 by the National Statistical Office with Technical Assistance from the Asian Development Bank found that poverty and hardship were perceived by sample communities in rural areas to have increased between 2000 and 2005. New layers of poverty have emerged and the number of poor and extremely poor is growing (Poverty Research Group, 2005).

The emerging extremely poor population is concentrated in rural centers and cities where they arrived after loosing all their livestock. Different groups of respondents defined poverty and hardship as "having to worry about daily sources of food, loosing livestock or being unemployed, lacking ger or accommodation to keep warm, borrowing cash for medicine and school fees". Recent regular livelihood strategies of the poor and very poor that were reported included high risk gold mining in makeshift shafts, collection of scrap metal, collecting garbage and begging, stealing, prostitution, and laboring in odd jobs at the Chinese border (Poverty Research Group, 2005).

Well-being categories and typology of the poor as defined with sample communities during the Participatory Poverty Assessment and Monitoring Study, are represented in table 4.

Table 4: Well-being Categories and Typology of the Poor, as defined in Participatory Poverty Assessment and Monitoring (PPAM), NSO/ADB 2004.05. Source: Poverty Matters, September 2005

No	Cat-egory	Criteria	
		Rural	Aimag/ Soum Center
1	Wealthy	***Livestock:*** 500 or more ***Ger:*** Fully furnished, with solar panel, extra ger, storage ***Vehicle:*** One or two jeeps/cars/trucks ***Children:*** Could study in schools/higher institution and live separately. ***Assets:*** Have collaterals to access bank loan	***Income Sources:*** Business and livestock(in rural areas managed by others) ***Ger:*** With housing in the city ***Vehicle:*** One or two jeeps/ cars/ trucks ***Children:*** Attend private courses apart from secondary school education ***Assets:*** Have collaterals to access bank loan
2	Wealthy Enough	***Income Sources:*** 350-500 or more ***Ger:*** Fully furnished, with solar panel, extra ger, storage house ***Vehicle:*** One or two jeeps/cars/trucks, the type or quality of vehicle could be moderate ***Children:*** Could study in schools/higher institution and live separately. ***Assets:*** Have collaterals to access bank loan. Can hire people when necessary	***Income Sources:*** Business and livestock(in rural areas managed by others) ***Ger:*** Have both apartment and house with electricity, furnished ***Vehicle:*** Vehicle/microbus, motorbike ***Children:*** Children attend a school ***Assets:*** Have collaterals to access bank loan
3	Average	***Income Sources:*** 150-350 ***Ger:*** With 4/5 walls, some have double ger Cover, some have electricity ***Vehicle:*** Some have motorbike ***Children:*** Could study in schools/higher institution and live separately. ***Assets:*** Have collaterals to access bank loan. Sometimes hire people when necessary	***Income Sources:*** Only one earning family member; irregular income ***Ger:*** Could be own or rented apartment or house, with electricity, few old furniture ***Vehicle:*** No vehicle in general, may have motor bicycle ***Children:*** Attend school ***Assets:*** May or may not have collateral to access bank loan
4	Poor	***Income Sources:*** 10- 150 ***Ger:*** Single cover ger or roof with holes, live in small space with little or no insulated wall, few old furniture, no electricity, with or without floor. ***Vehicle:*** Some have motorbike ***Children:*** Dropped out from school, some attend distance training ***Assets:*** Not enough assets as collateral to access bank loan	***Income Sources:*** Without regular income other than pension/allowances; collecting scrap metals ***Ger:*** Old and poor apartment or house; often houses provided by government ***Vehicle:*** None ***Children:*** Generally dropped-out from school; some attend primary school ***Assets:*** Physical health
5	Very poor	***Income Sources:*** None ***Ger:*** Single cover ger with holes on roof, live in small space with little or no insulated wall, live in small adjacent house belonging to families who support them ***Vehicle:*** None ***Assets:*** Physical health(for some)	***Income Sources:*** Garbage collection, begging, donation from others ***Ger:*** Few live in gears provided by government or NGOs; others old live in old and dilapidated housing with no electricity; dome live in sewer holes or apartment doorways ***Vehicle:*** None ***Children:*** Not in school ***Assets:*** Physical health (for some)

Deforestation in the steppes and loss of vegetation cover in the Gobi sample sites of the Participatory Poverty Assessment and Monitoring Study were identified as a major threat to people's livelihoods. (Poverty Research Group, 2005). The Economic Growth Support and Poverty Reduction Strategy (EGSPRS) states "the Mongolian Government's priorities are to accelerate economic growth and reduce poverty. Special focus is given to the involvement of poor people in the development process through helping to improve their health and educational level, upgrade their skills, and most importantly the creation of a favorable environment for business development. Therefore one of the milestones of poverty reduction is acceleration of economic growth".

A comprehensive report titled "The Wealth of the Poor" (World Resources Institute 2005) has emphasized the paramount significance of ecosystems as income provider- and potential source of wealth- for the poor (Box 2) and that programs to reduce poverty often fail to account for the important link between environment and the livelihoods of the rural poor. The many case studies and data provided in the report are an important source of information and a tool to promote greater benefits to the poor and to local communities who are the stewards of resources and ecosystems. The report points out that "programs to reduce poverty often fail to account for the important link between environment and the livelihoods of the rural poor" (WRI 2005, page 3) and this may hold truth for livelihoods, policies and environmental management in Mongolia.

While the report of the World Resources Institute aims to promote poverty reduction through inclusion of the poor in economic development, based on environmental income, other analysts see the reason for the emergence of poverty in economic development (and colonization) itself. Ecosystems of course were the original wealth of humans, living in families, communities and societies that did not know poverty, where "economy was embedded in social relations" and "people had a rich cultural and ceremonial life, and on the whole lived in a relatively unspoilt environment. They were usually well-fed, and perfectly healthy – until their cultural patterns were disrupted by colonization, and later by economic development, and their natural environment destroyed" (Goldsmith 2006). Thus Mongolia, at least its Northwestern part, in the early twentieth century still was described as "land of wealth and beauty, a land occupied by great nomadic tribes, supporting immense herds" and "a region of plain and plateau, mountain and lake, a pleasant country of pasture and forest" (Carruthers 1913).

However, it could be argued that the two views above concur with regard to the role of institutions and of governance of natural resources, and with regard to the ability of communities, and particularly those now living in poverty, to exercise full stewardship. The World Resources Institutes report argues that "pro-poor growth based on the sustainable use of natural resources requires a fundamental change in governance". It elaborates that "an array of governance failures typically intervene: lack of legal ownership and access to ecosystems, political marginalization, and exclusion form the decisions that affect how these ecosystems are managed. Without addressing these failures, there is little chance of using the economic potential of ecosystems to reduce poverty" (WRI 2005, page 3).

Box 2 "Nature, Power and Poverty"

"Ecosystems are – or can be – the wealth of the poor. For many of the 1.1 billion people living in severe poverty, nature is a daily lifeline – an asset for those with few other material means. This is especially true for the rural poor, who comprise three-quarters of all poor households worldwide. Harvests from forests, fisheries, and farm fields are a primary source of rural income, and a fall-back when other sources of employment falter. But programs to reduce poverty often fail to account for the important link between environment and the livelihoods of the rural poor….the full potential of ecosystems as a wealth-creating asset for the poor – not just a survival mechanism – has yet to be effectively tapped."

Source: World Resources Institute 2005, "The Wealth of the Poor"

Mongolia's natural resources were sought after a hundred years ago as today, and rural inhabitants entered the money economy by selling natural resources at low prices to foreign markets, in much the same way as it happens today as this report will show. Historic accounts of travels in Mongolia a hundred years ago are surprisingly reminiscent of the situation that the field team for this study found in 2005 and early 2006. The cheap sale of precious resources as it is underway today, has been described in 1913 by Douglas Carruthers in his travel account "Unknown Mongolia". Observing traders in Northwest Mongolia, he remarks:" (they) had collected large quantities of wool, hides and marmot skins. The profits must have been very great. Take the marmot-skins, for instance. They are purchased in thousands at an absurdly low price, and sent to Europe." (page 323, Vol. 2, Carruthers 1913). Likewise, deer antler (blood antler) was apparently traded in the early twentieth century as in recent years. Carruthers (1913) describes from Mongolia's northern border region "commerce in wapiti (red deer) horn being a remarkably remunerative business on account of the great value the Chinese attach to them".

In Mongolia, traditional social organization has undergone immense changes and destruction not only during seven decades of soviet domination and a centrally planned economy but also through the advent of a new religion and through foreign rule in previous periods. Among Mongolia's pastoralists, customary local institutions for common use of pasturelands however, have survived, if faintly. In fact, they are being revived at present, after the collapse of the authoritarian government created a vacuum of local institutions for natural resource management. Currently, communities throughout the country are organizing in various forms of user groups and are striving for tenure security over local natural resources, particularly in the face of increased issuance of licenses for resource exploitation to corporate and outside interests. It is in this context of social reorganization that ongoing efforts to develop the legal and institutional framework for community based natural resource management in Mongolia contribute.

While the work represented here can only acknowledge the truth of a natural wealth lost and local as well as global environmental conditions degraded to an alarming degree, it seeks to contribute towards an enabling environment to build sustainable communities in the face of these challenges, - by recognizing local knowledge, by learning from local communities and using tools of participatory action research, and by applying the Sustainable Livelihoods Approach as the analytical framework. The Sustainable Livelihoods Framework indeed takes up the theme of "economy embedded in social relations" by placing institutions, in a broad sense of structures and processes, at the heart of livelihoods.

2. METHODOLOGY

2.1 Approach

The study took a very predominantly qualitative approach designed to capture an in-depth picture among a small sample (of the population) on the topic of forest and livelihood linkages. True to the nature of qualitative research, the field study design allowed for flexibility while adhering to guidelines to cover key issues and enable cross-checking between different tools of participatory analysis and respondents.

The objective of the field studies was to facilitate learning about individual and household-level livelihoods and livelihood dynamics, particularly poverty and forest linkages, by using the Sustainable Livelihoods approach as the analytical framework. To this end, the field team conducted participatory analysis, and conventional research, to learn about

- availability and accessibility of livelihood resources
- livelihood strategies, their combinations and outcomes
- formal and informal institutional arrangements, and their linkages, that facilitate, or inhibit, strategies and outcomes.

The sampling (selection of sites, groups, households, participants in different interviews and exercises) followed both purposive sampling (such as analyzing livelihoods in different wealth strata identified in participatory analysis) as well as random sampling principles (such as interviewing households within one stratum).

2.2 Sampling

The selection of regions, local areas and communities was guided by

- the intention to capture diversity of ecology, agro-ecology and of community profiles,
- the intention to capture rural-urban linkages
- the intention to capture links of sustainable forest –pasture management
- the need to balance sample size (participating communities), expected level and depth of analysis, and the available time frame and resources.

An additional consideration in the selection of the study sites were the proposed Aimags and Soums for implementation of the project "Capacity building and institutional development for participatory natural resources management and conservation in forest areas of Mongolia" (FAO) that was in the planning stage at this time.

Field studies were undertaken at five sites between June 2005 and January 2006:

- Tsenkher Soum of Arkhangai Aimag
- Ulaan Uul Soum of Khovsgol Aimag
- Binder Soum of Khentie Aimag

- Teshig Soum of Bulgan Aimag
- Baynlig Soum of Bayankhongor Aimag

With the exception of Tsenkher Soum of Arkhangai Aimag, all sites are pilot areas of the above mentioned project.

The unit of analysis was a community, - in rural areas a community of households below bag level that "customarily" shares seasonal pastures and pasture water supplies, in urban (soum center, aimag center, capital city area) areas a similar size group of neighbourhood households, or a group of households that shares resources or norms, or identifies as a community for other reasons.

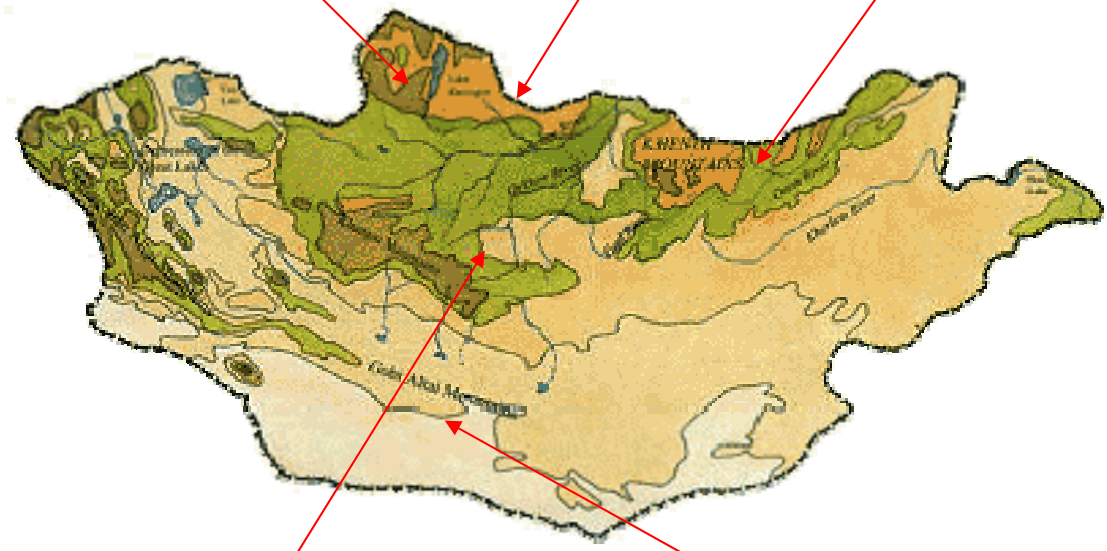
In each Soum, both Soum-center and one or more rural communities were selected. Bags and local communities were selected by the field research team in consultation with local government and other resource persons, based on the guiding principles laid out above. Households for household case studies (structured interviews, semi-structured interviews, livelihood analysis, in-depth interviews) were selected based on wealth strata of the community developed through wealth-ranking and well being grouping, purposively from certain strata and randomly within strata.

Individuals were chosen purposive in case of key informants for interviews and for gender aspects/balance, and randomly within focus groups.

Study Site 4, in Taiga/Mountain Forest Steppe Zone.
Teshig Soum of Bulgan Aimag

Study Site 2, in Montane/Taiga Zone.
Ulaan Uul Soum of Khovsgol Aimag

Study Site 3, in Mountain Forest Steppe/Taiga Zone.
Binder Soum of Khentie Aimag.



Study Site 5, in Desert steppe/Desert Zone.
Baynlig Soum of Bayankhongor Aimag.

Study Site 1, in Mountain Forest Steppe Zone
Tsenkher Soum of Arkhangai Aimag.

High Mountain Zone

Taiga (Forest) Zone

Mountain Forest SteppeZone

Steppe Zone

Desert Steppe Zone (semi desert)

Desert Zone

Source of Map: Forests and Forest Management in Mongolia, FAO, RAP Publication: 1997/4

2.3 Field Research Tools and Techniques

In summary, the following tools and techniques were used by the field team.

- Data collection through in-depth interviews with key informants, structured interviews for household case studies, from data bases of government and research institutions, and through literature study to define the context of policy setting, politics, history, agro-ecology and natural environment, socio-economy, and macro-level processes
- Participatory Analysis in the field using visualization tools of diagramming including participatory mapping, impact flow diagrams, seasonal calendars, ranking and scoring exercises, wealth ranking and well-being grouping, venn diagrams, changes and trends, timelines, transects, combined in sequences with semi-structured interviews with informants and focus groups, interviews/conversations with natural groups.
- Presentations and discussions in plenary groups, and conversation with individuals, key informants for validation, cross-checking/triangulation.

Sequencing of tools was designed to facilitate participatory Analysis and Learning about Community Profiles, Livelihood Profiles and Institutional Profiles.

The methodological approach and research tools to be applied were described in detail in a preparatory paper titled “Rural Livelihoods and Access to Forest Resources in Mongolia - Report on Methodology for Field Study” (IPECON 2005).

3. FINDINGS

3.1 Resource use and livelihoods of the poor and non-poor – who benefits?

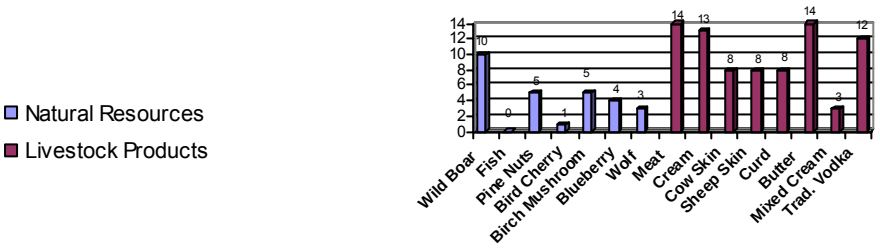
The case studies at five sites have highlighted the disparities between the poor and better-off in their ability to derive benefits from natural resources. While the poor function as laborers, or resource collectors who hand over their harvest at exorbitant low prices, the better-off act as though they are the resource owners. The non-poor are able to process products, and through value addition and transport to markets can command much higher prices. The involvement of the poor in processing by contrast is rather in the form of laboring in small processing plants, thereby gaining not more than a low wage. These observations are true for both timber and non-timber forest resources.

Livelihood analyses have provided ample evidence that overall, pastoral products play a far greater role in local livelihoods than forest products. Table 5 lists the 10 most important products and resources for income generation for 3 study sites in northern forest. Allover, the primary income earners are livestock products, with meat and cashmere as the most important ones, and larch and cranberry appearing as the only forest products among the first 5 ranks at the sites represented here. Forest products occur predominantly as income earners in ranks 6-10. Figure 1 also illustrates the greater significance of livestock products compared to forest resources for local household income, with another example from a rural site in Teshig Soum of Bulgan Aimag.

Table 5: Significance of Livestock Products and Natural Resources for household income generation in 3 rural sites in northern forest – 10 most important sources.

Rank	Bulgan Aimag	Khentie Aimag	Huvsgul Aimag
1	Meat	Meat	Cashmere
2	Cashmere	**Larch**	Meat
3	Cream, Milk	Cashmere	Mixed Cream
4	Butter	Cream	**Cranberry**
5	Dried Curd, Skin	Skin, rawhide (large livestock)	Fat
6	Vodka	Fat, skin (small livestock)	Dried curd, skin, **Pine**
7	**Wolf**	**Marmot**	**Squirrel, Gold**
8	Wool	**Bird Cherry**	**Fish, Larch**
9	**Pine Nuts**	**"Apple"**	Horse mane, Cream,
10	Sweet Cream	**Wolf**	**Pine nuts**
Data generation: pairwise ranking of resources listed for income generation			

Fig.1 : Natural Resources and Livestock Products, ranked for their significance in household income generation. Rural study site, Bulgan Aimag.



Livestock ownership plays a pivotal role to leverage better benefits from forest products. Typically, the better-off employ fewer livelihood strategies and generate a larger percentage of household income from livestock products than the poor. Owning more livestock, they can generate the means that enable them to add value to and profit more from forest resources. They are able to build wealth, in form of herds as well as other assets (savings, real estate), and they benefit more from both pasture and forest resources.

Fig. 2 : Three households at the same site in northern forest (Khangai): the upper two, average/better off, generate 80 % of annual income from livestock, and 20 % from value added forest products.
The poor household, lower, generates 80 % of annual income from logging (no value addition), and 20 % from livestock.

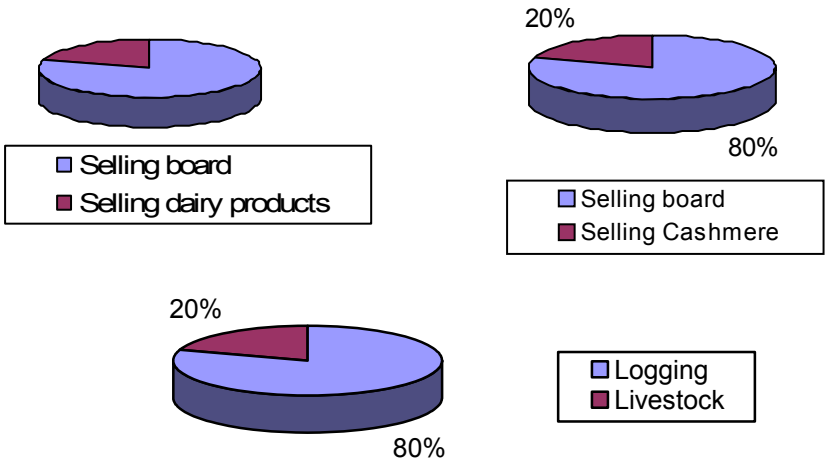
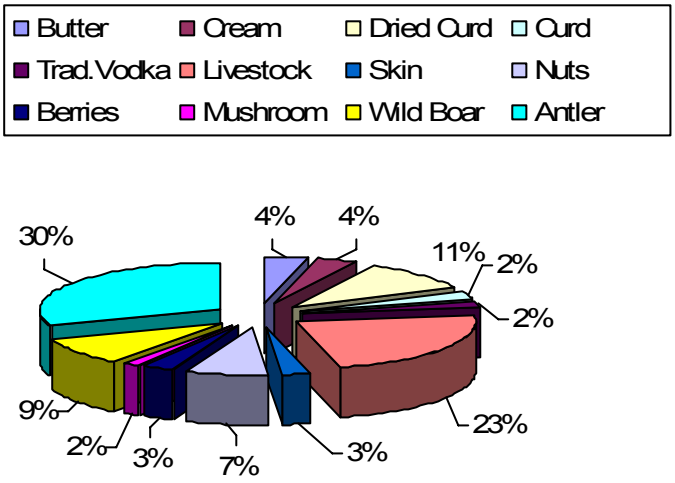


Fig.3: A household defined as "poor", with a very diverse income base, constituted to 49 % of forest resources, all non-timber, and 51 % of livestock products. Income in absolute monetary values see Table 6.

Fig. 3: Diverse Income of a household defined as"poor"in this community.
Iren Bag, Teshig Soum of Bulgan Aimag



Triggered by the loss of support systems through the transition to a market economy, and exacerbated through several years of Dzud (severe winter weather) with massive livestock losses, poverty has significantly increased in Mongolia. With livestock lost as income source, and for lack of other alternatives, households turn to harvesting forest resources, both timber and non-timber, to a larger extend. The livestock-poor emerge as a key player in the use of wild resources. Thus, rural center households, on average poorer and often having suffered recent livestock losses, also appear as users of a greater variety of forest resources. Typically, working groups in rural centers listed more natural resources used for livelihoods and income generation than working groups in the countryside made up of herding households (table 8).

Table 6: Income from different sources of poor household (Fig. 3)	Amount (MNT)
Butter, 30 kg @1.400 MNT, Plus 20 kg for own use	42.000
Cream, 40 ltrs. @ 1.000 MNT	40.000
3.Dried curd, 20kg @ 600 MNT	12.000
Curd, 100 kg @ 250 MNT, Plus 100 kg for parents and own use	25.000
Trad. Vodka, 50 ltrs. @ 500 MNT	25.000
Livestock sales, 1 cow @ 150.000, 3 sheep @ 25.000, 2 goats @ 17.000	259.000
Livestock skin, 1 horse skin @ 18.000, 1 cowskin @ 12.000	30.000
Manes and Tails	5.000 – 10.000
Pine Nuts, 80 kg @ 1.000	80.000
Berries, 30 kg @ 1.000	30.000
Mushroom “Chaga”, 20 kg @1.000	20.000
Wild boar, 50 kg @ 2.000	100.000
Antler, 20 kg @17.000	340.000
TOTAL	1.013.000

Table 7: Numbers of Natural Resources/Species listed as being used for local livelihoods and income generation in country side and rural center sample sites of different regions

	Total		For Income Generation	
	Countryside	Rural Center	Countryside	Rural Center
Arkhangai	25	49	6	13
Khuvsgul	40	57	20	10
Bayankhongor,	15	25	3	4
Bulgan, Teshig Soum	31	60	2	28

Data represent information from only one rural and one rural center sample site per region, not averages of sample sites per region.

	Countryside	Rural Center
Arkhangai, Tsenkher Soum	Birch, Strawberry, Goose berry, Water lily, Cranberry, Mushroom, Burnet, Peony, Plantain, Jointweed, Marmot, Fox, Wild boar, Black Grouse, Wood Grouse, Roe deer, Chipmunks, Partridge, Pine, Larch, Pine nut, Black currant, Squirrel, Wolf	Strawberry, Onion, Willow, Red current, Yellow gentian, Plantain, Common dill, Mugwort, Onion sp, Wild onion, Goose berry, Blue Gentain, Grasses, Mushrooms, Water, Sand, Gravel, Burnet, Juniper, Corsac fox, Wolverine, Chipmunks, Hare, Red deer, Marmot, Vulture, Wood grouse, Owl, Hawk, Roe deer, Musk deer, Daurian Partridge, Fish, Manul Squirrel, Pine nut, Red berry, Black current, Prickly rose Pine, Cranberry, Larch, Ground squirrel, Red fox, Wolf, Lynx, Badger, Wild boar,
Khuvsgul, Ulaan Uul Soum	Grass, Jade, Edelweiss, Artemisia, Surnag, Rosebay, Hare, Purola, Water, Red cherry, Duck, Prickly rose, Altai Snowcock, Thyme, Juniper, Mineral water, Burnet, Wolf Grass, Plantain, Argali sheep, Bear Cranberry, Fox, Spruce, Birch, Pine, Rock crystal, Gold, Blue berry, Musk deer, Pine nuts, Red cherry, Saussurea, Wolf, Squirrel, Ground squirrel, Fish, Mushroom, Larch, Black current	Sparrow, Loon, Altai Snowcock, Lammergeyer, Wood grouse, Outgrowth, Little owl, Eagle, White hare, Eagle Owl, Black kite, Pheasant's eye, Ural owl, Red currant, Vulture, Gazelles, Atragena, Mountain Weasel, Mineral water Boshdog, River, Cotoneaster, Bulgan khar, Plant temeen suul, Mineral water of Tsagaan Nuur, Onion, Pink, Prickly rose, Rose bay, Chalk , Red berry, Wild onion, Antitoxicumn Pine tree, Black current, Coal, Squirrel, Rose bay, Argali sheep, Ibex, Spruce, Bear, Saussurea involucrate, Baljingarav, Plantain, Grass, Larch Horse mushroom, Sable, Fox, Musk deer, Juniper, Blue berry, Red deer, Jointweed, Purola, Pine nuts,
Khentie, Binder Soum	Crataegus, Burnet, Madwort, Birch, Prickly rose, Scotch pine, Straw berry, Stone bramble, Cranberry, Poplar, Willow, Plantain, Badger, Wolf, Lynx, Hare Lenok, Taimen Red berry, Apple sp, Pike, Larch Marmot, Red deer, Fox, Sable, Squirrel, Bear,	No compatible data collected
Bulgan, Teshig Soum	Hay, Black current, Arenaria capillaries, Thymus asiaticus, Blue berry, Fox, Lynx, Prickly rose, Dianthus superbus, Ribes diacantia, Daurian Partridge, Birch, Cocalia hastate, Artemisia frigida, Red current, Strawberry, Cranberry, Larch, Orostachys malacophylla, Crataegus dahurica, Galium boreale, Sogoon sav, Malus baccata, White mushroom, Onion sp. Allium schoeno-prasum (Onion sp.), Wild onion, Artemisia xerophytica, Onion sp. Pine nut, Wolf,	Geranium Pratense, Oats, Medicinal plants (Arenaria capillaries, Orostachys malacophylla, Calium boreale, Dianthus superbus, Ribes diacanta Rhodolia quadrifida, Plantago major, Cacalia hastata), Lilium pumilum, Great Bustard, White mushroom, Crane, Birch sap, Cratagus dahurica, Onion sp., Mineral water, Tree branches, Willow, Moose, Water, Red willow, Spruce, Rubus arcticus, Prickly Rose, Magpie, Onion sp., Malus baccata, Roe deer, Partridge, Mushroom Fir, Onion sp. , Black rice, Squirrel , Bear, Wild Onion, Birch, Red berry, Red Fox, Ulaan cuult- "red-tailed" fish, Khadary Whitefish, Wheat (crop), Strawberry, Cranberry, Black currant, Bird Cherry, Blueberry, Birch mushroom, Wolf, Larch, Pine, Pine Nuts, Gold, Wild Boar, Red deer, Hay, Taimen, Lenok, Marmot

While the average and better-off households may have just a few strategies, typically involving value addition both for livestock and natural resources, the strategies of the poor are more diverse and include various kinds of labor, in herding, households, processing as well as collection of natural resources (Table 10).

Table 10: Livelihood Strategies of the poor and non-poor, generalized from case study in Arkhangai		
	Typical strategies of the poor	Typical strategies of the better-off
Livestock	Selling Cashmere Selling skins	Selling cashmere Selling Meat Selling Dairy Products Selling skins
Timber	Logging, labor as logger Transporting logs by ox cart Labor in sawmill (board cutter, guard, mechanic, saw dust carrier) Carpentry, making wooden chests Making ger wooden frame	Timber trading Selling boards
Non-Timber	Hunting squirrel and selling skins Hunting marmot and selling skins Collecting berries Collecting nuts	Trading skins Trading nuts
Other	Sewing Other labor in herding, household, services	

In the definition of well-being, livestock ownership plays a key role, but regional differences are marked. Numbers alone do not provide a basis to compare well-being levels in different regions, as the income derived from livestock varies greatly depending on type of livestock, traditions in livestock management and product processing, and location.(table 11). For example, much fewer livestock numbers suffice in the Khentie to derive income perceived as sufficient for “average” well-being, they key being the ability to make and market value added milk products.

Table 11 : Households (examples) with similar livestock number in different regions, and income derived from livestock and forest resources. All were ranked as “average” in their local community

	Livestock #	Annual Income	% Livestock Income	% forest resource income
Khentie	60	1.65 Mio MNT	80 %	20 %
Bulgan	69	312.000 MNT	100 %	0 %
Khangai	89	280.000 MNT	90 %	10 %

Table 12: Examples from selected local study sites illustrate these disparities. In Arkhangai the average household herd size and composition was 104 animals, made up of 16 % horses, 17 % cattle, 35 % sheep, 32 % goat at one site. By comparison, households in a Khentie site had much smaller herds, with an average total of 32 livestock, of which 19 % were horses, 31 % were cattle, 47 % sheep, and 53 % goat. Income by comparison was higher in the Khentie; an average household there is better off than a household that is ranked as average in the Khangai. This is most likely to be attributed to opportunities for value addition and marketing in the Khentie.

Table 12: Average household herd size and composition at different sample sites

Aimag	Total livestock		horses		Cattle		Sheep		Goat		Camel	
	#	**%**	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**%**
Arkhangai	104	100	17	16.3	18	17.3	36	34.6	33	31.7		
Khuvsgul	60	100	9	15	15	25	15	25	19	31.6		
Khentie	32	100	6	18.7	10	31.3	15	47	17	53.1		
Bayankhongor	150	100	12	8	15	10	19	12.6	62	41.3	75	50
Bulgan	79	100	7	8.9	14	17.7	41	51.9	39	49.4		

Data collated from sites with differences in well-being, and based on different household numbers; they show trends but not overall compatible averages between the regions.

Table 13: Presents livestock based criteria to define different well-being groups from different study sites. While very poor households in the Khangai are defined as having up to 50 livestock, in the Khentie the average and better than average are defined by 25 or more livestock. Incomes generated per head of livestock is very different regionally, and income form cows in the Khentie is particularly high, in contrary to income from cattle/yak in the Khangai.

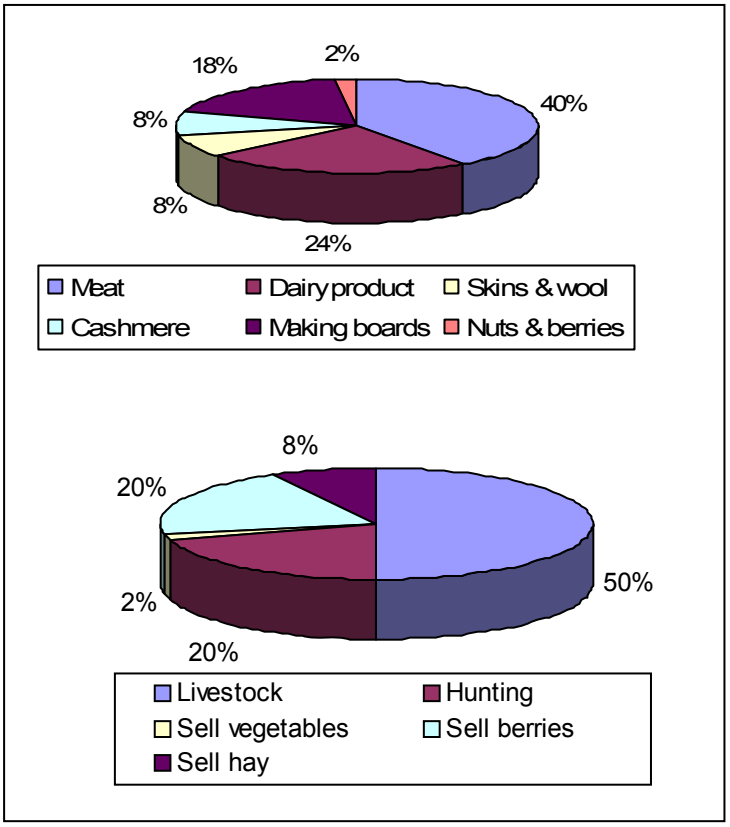
Table 13: Definitions of well-being groups by livestock number at sample sites in different study regions (other criteria were also listed)

	Better-off	**Average**	**Poor**	**Very poor**
Khangai	300-500	100-250	Less than 50	0-50 , many family members
Khuvsgul		100-150	20-50	Less than 20
Khentie	More than 25 and less household members		Less than 25	
Bayankhongor	More than 60 4 or less household members		Less than 60 4 or more household members	
Bulgan	More than 80		10-80	0-10
Data represent information from one sample sites per region, not averages across region				

When comparing households in one region, the correlation between livestock number and income percentage from forest resources is evident (fig. 4).

However, even if forest resources make up a larger percentage of the income of a poor household, income from forest resources for a better-off household will often be much higher in absolute monetary terms. This is particularly true for timber. A better-off household, with means of transportation, is able to earn the same amount of cash (60.000 MNT = approx. 50 US Dollar) by selling boards made from 10 logs, as the poor household makes from 200 logs (logs of 4 meter) (Box 3).

Fig.4: Examples of 2 households in the Khentie. Top: Better-off. Bottom: Lower well-being. For the better-off household, forest resources/products, make up 20 % of total income. For the household of lower welll-being, forest products make up 48 % of income.

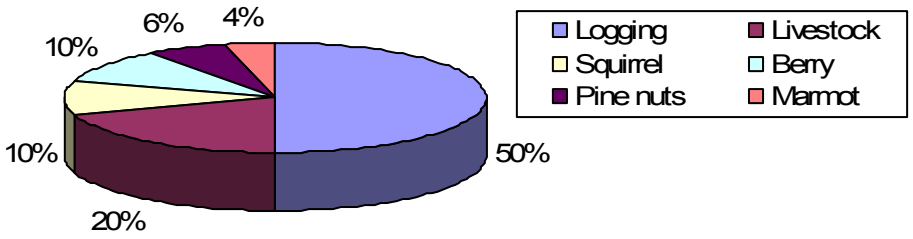


The poor are not able to build wealth, they only manage to eek out a temporary and low income, while the resources that could be the source of their wealth are being depleted.

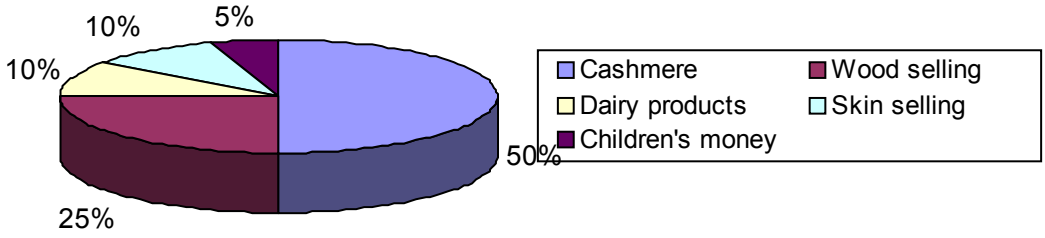
Box 3 : The Value of Timber - Case Study Khangai

"Income from 100 prepared logs is just enough for buying 1 pair of shoes, a deel, trousers and to pay for food needed during logging." (logger from poor household)

Accessing Markets	Adding Value
The logger in the local area sells a 4 meter log for 400-500 MNT.	The logger sells one 4- meter log for 500 MNT
One household cut 200 logs in the winter Payment for permit and to officer: 20.000 MNT. Sells logs for 80.000 MNT. Income: 60.000 MNT	A log makes 3-4 boards. The sawmill charges 1.300 MNT to cut one log into boards.
A 4 meter squared lumber ("balk") of larch sells to end-consumer in Ulaanbaatar for 9.000 MNT (whole sale 7.000 MN)	The laborer cutting the log is paid 20 MNT/log.
The value increased 15-18 times!!	One board is worth 1.500 MNT.
	The buyer of log has boards worth 4.500-6.000 MNT to sell. The value addition is 9-12 times.



Poor Household
Logging – 50%, Livestock – 20%, Squirrel – 10%, Berries– 10%, Pine nuts – 6%, Marmot – 4%



Average Household
Cashmere – 50 %, Selling Wood - Dairy Products 10 %, Selling Skins 10 %, Children Money 5 %

Fig. 5: Income composition of a poor and average household at the same site, in the Khangai. The average household earns 70 % from livestock, and 25 % from selling wood. The poor earns 50 % from logging, 30 % from non-timber forest resources, and 20 % from livestock.

Timber harvest and trade

The resulting mechanisms of timber harvesting and trading leads to a large number of trees being cut, usually upon prior informal agreements. The heavy work of harvesting and moving timber to loading sites, using manual tools and livestock for transportation, is usually done by poor local households, who sell at very low prices to local or outside traders for on-sale to the domestic or international (China) market. Disparities in ability to add value to resources and products and to reach markets are significant and promote a flow of benefits to the better-off, within or outside the local community. The mark-up in timber prices is very high, amounting to up to 18 times for a square lumber by the time it is sold to the end-consumer in the capital city (see Box 3).

Large scale, industrial extraction of timber resources, as well as forest fires and pests are perceived by local government and communities as the main cause of depletion of timber resources in the past. Significant areas were clear cut and have been lost through fires over the last decades. A very frequent complaint, or suggestion, on local level is that permission to use fallen timber in fire damaged areas be granted to local residents at low or no cost.

Current legislation, placing limitations on annual allowable cut (AAC) determined by central government, however, appears to not have reduced illegal timber harvesting but in fact to have increased the trade as prices have risen. Permits for cutting logs are expensive for local residents, particularly for the poor who may only be able to afford permits if several household pay collectively.

Table 14: Costs of logging permits for 1 cubic meter of wood (Teshig Soum, Bulgan Aimag)

Used for	Construction			Firewood
Log diameter	>25 cm	12-24.5 cm	3.5 – 12 cm	
Cost (MNT)	9.800	8.600	6.500	2.200

With most harvested timber entering the chain of trading, local household needs for timber can rarely be satisfied within the legal annual limits. While amounts of timber needed for local use is low compared to the traded volumes, timber is an important resource for local livelihoods, used in construction and in manufacturing of items for household and herding needs. Participants in local workshops listed up to 46 uses of 3 types of timber, including furniture, livestock shelters, saddle trees, human dwellings, ceremonial items, and containers.

Traditional practices are also compromised through the high prices of permits for timber, and poor households are particularly impacted. In Mungarag Bag of Ulaan Uul Soum (Huvsgul Aimag), ger wood production is a traditional craft, based on the abundance of well-suited larch trees in the area. Today, it is an important income source of poorer households, while non-poor households engage in the activity rather for supplementary income and to met costs for special occasions. With the high process for timber permits, the craftsmen of poorer households are not longer able to put their skills to use and they are loosing an important income source.

Firewood needs are often not met by the legally allowed amounts, and local law enforcement personnel is left with little choice but to tolerate transgressions with regard to fuel wood use.

Fuel wood needs pose a particular challenge in the arid forests of the desert steppe and desert zone of the Gobi. The increase of saxaul use for fuel was seen as directly related to the advent and increase of motor vehicles in local areas, placing the begin of larger scale use already in the 1960s and not in the 1990s as is true for many forest resources, particularly non-timber. Here, fuel demand for domestic use in district and provincial centers, and needs to supply public buildings with cheap fuel, are putting very high pressure on Saxaul forests. This has direct bearing on the livelihood of local herder communities, whose camel herds depend on Saxaul forest as winter and reserve pasture. Collection of saxaul, and other resources such as Goyo, predominantly by outsiders, is impacting livestock health, resilience and number and there are multiple links between saxaul forest health and local livelihoods, direct through depleting pasture resources, and indirect through affecting local micro-climate and thereby requiring changes in herding practices that are more labor intensive. (see Box 5).

As in the northern forests, the collection of certain non-timber species is driven by market demand for Chinese medicine, and the more lucrative on-sale of the resource across the border can be undertaken by those with the means of transportation.

Box 4 - Livelihoods of the Poor
Case of a laborer in the saw mill (saw dust carrier), Khangai

"My monthly wage is 20.000 – 30.000 MNT. Our family has 5 members, 3 children. We have 5 cows and 3 Horses. My husband works also in the saw mill. Sometimes we need a loan; we can't take it from the bank, because of the high interest rate. We borrow from the saw mill owner. If we can't repay, then we just go to the forest. One possibility to make money could be making boards. We can prepare logs ourselves, but we can't pay for making boards from logs. We collets pine nuts and barter for flour and rice"

Non-timber forest resources

The mechanisms described above, have serious impacts on biodiversity and are undermining an important resource base for local communities, as well as the basis for the development of tourism based on natural heritage values that has the potential to make a significant contribution to local economies.

Non timber forest products, particularly floral resources such as berries, pine nuts and medicinal plants, tend to be more important for the household income of the poor and very poor, as long as they are in close proximity to the resources (table 15, fig. 3, 5). Otherwise, lack of transportation means makes even non timber forest products hardly accessible to the poor, although they cover large distances on foot to reach them.

Table 15: 10 most important resources and livestock products for household income generation, Tusgal Bag, Binder Soum, Khentie Aimag, for mixed group of households and group of poor households.		
Rank	Mixed group	Poor
1	Meat	Cashmere
2	Larch	Butter
3	Cashmere	Pine Nut
4	Cream	Pine Tree
5	Skin, rawhide (large livestock)	Skin, Milk
6	Fat, skin (small livestock)	Blueberry
7	Marmot	Hay, Larch
8	Bird Cherry	Hard cheese
9	"Apple"	Curds
10	Wolf	Red berry

The comparison in Table 15, from Tusgal Bag in Binder Soum of Khentie Aimag, between the 10 most important resources and products for income generation, provides examples for the greater significance of forest products for household income of the poor (in percentage, not absolute monetary value). Also, it is evident that wildlife hunting may be less among the poor, likely for lack of mobility or less possession of gun. Timber, and the most valuable type (larch) is ranked 3rd in the mixed group, while among poor households timber (pine) was ranked 5th.

The use of forest species for medicinal use is widespread and important in northern and arid forests alike, although regional differences in knowledge and extent of use within northern forests are apparent, with knowledge and use being in northern forest sites more pronounced in Huvsgul and Bulgan compared to Khangai and Khentie.

Collection for selling far outweighs collection for household use in some areas. In Huvsgul province, where traditional knowledge on medicinal plant use seemed particularly strong, large scale collection of herbs and medicinal plants is underway, undertaken by local collectors, who provide the plants to buyers from the domestic pharmaceutical and health food industry. Here, plant collection has become one of the livelihood strategies of the poor, who gain low income, while the end products are sold at high prices in the capital city. (Ikh Taiga Tea example). The scale and practice of collection, whereby medicinal plants are baled like hay for sale, is reason for concern, with regard to biodiversity conservation as well as the recognition of intellectual property rights for the holders of local and traditional knowledge and the securing of benefits accordingly. Experts on medicinal plants within the local community expressed concerns about both issues.

Several species have been targeted only recently for collection, since beliefs in healing properties of the species spread, or external demand sharply increased. Examples for this are Birch Mushroom in the Northern forests and White Goyo in the Saxaul forests.

Wildlife populations have been depleted to an alarming degree, and species are hunted regardless of their formal status as rare, vulnerable, or endangered. Trade in wildlife is predominantly supplying traditional medicine demand in China and it is facilitated by traders, both Mongolian and Chinese. In some regions, traders actively

encourage local households in illegal taking of wildlife by giving discounts on other good for wildlife supplies, while in other regions the trade is more opportunistic.

Taking of wildlife for local meat consumption, however, gives also reason for concern with regard to biodiversity conservation. In Teshig Soum for example, moose and Houbara bustard, both listed as rare, were mentioned as source of meat for local use.

The marked declined of all wildlife species, has also been described in recent studies commissioned by the Wildlife Conservation Society in Mongolia. (World Bank 2005)

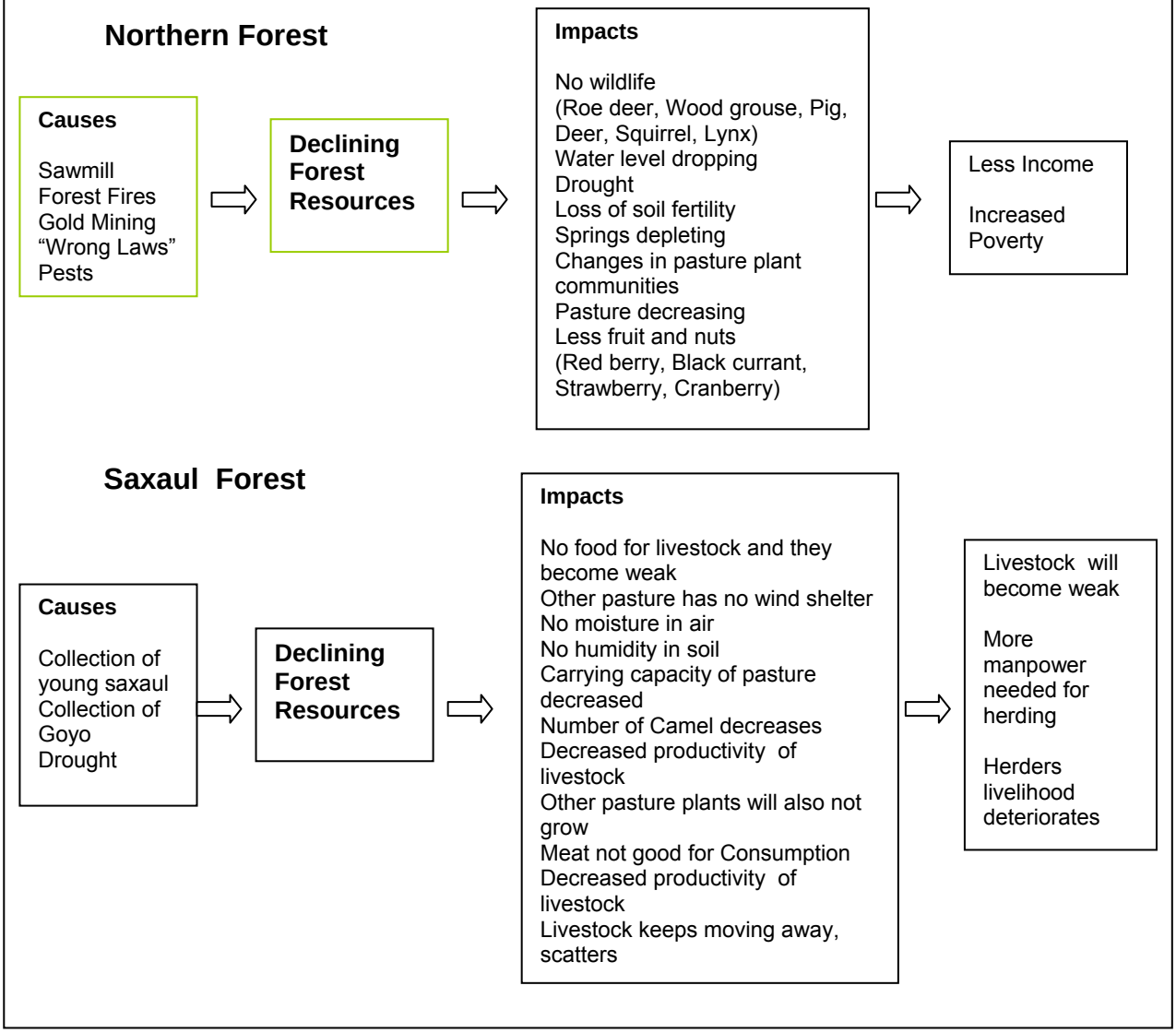
Ecosystem services

There is a multitude of forest functions for local livelihoods, and important links to pastoral resource needs. These include not only provision of timber for fuel and household needs, but also of water sources, of reserve pasture crucial for risk management, and of medicines. Due to these important functions, forests are also frequently of spiritual significance, with certain sites that have been held sacred and protected by local communities for generations.

Box 5, based on outcomes of group discussions in the Mountain Forest Steppe in the Khangai Mountains and in Desert Zone in Baynkhongor Province, illustrate perceptions and experiences of local pastoral communities on forest functions and ecosystem services.

Box 5 Ecosystem Services of Forests

Discussions on Causes and Impacts of Forest Degradation by local communities illustrated ecosystem services of forests for local pastoral livelihoods, and for the wider community in the region.



Recent trends, however, promote the disenfranchisement of local pastoral communities from forest functions important for maintaining their livelihoods as well as cultural traditions in favor of corporate interests of extractive industry, and of agricultural and tourism business. Ongoing or emerging conflicts seem to become common place in rural Mongolia and were apparent in all areas of the field studies. The most striking example was encountered in mountain forest steppe in the Khangai, where a local community was confronting the threat of loosing a multitude of resources and ecosystem services including important reserve pasture (otor) areas, water sheds and places of worship and traditional protection to gold mining operations in the Nariin Khamar valley. While indirect values for local communities such as sacred sites and customary reserves tend to be devalued and increasingly disrespected, tourism companies, based in the capital city, are in turn capitalizing on the intrinsic values of the natural environment and on outstanding biodiversity values even in remote rural areas. In Teshig Soum at the border to Russia, high-end tourism

operations are based on the Taimen fishing opportunities and pristine natural surroundings. A foreign gold mining company in the district is, according to the local environmental inspector, using large amounts of water and polluting water sources, while employment at relatively low wages is the only local benefit. Moreover, an agricultural company, employing few local workers and only seasonally, has converted pasture land into crop land, a fact that was mentioned as a cause of local poverty by both herders and government representatives in the area.

Regional differences in linkages of poverty and forest resource use

While the trend that poorer households have to rely for a greater percentage of their income on forest resources is common in all regions, there are regional differences on the extent and on the type of these forest resources. In the Khangai, timber resources are more important, probably due to the location to markets, while in Khentie and Huvsgul, non-timber resources are greater income generators for poor and very poor. Use of wildlife resources may not quite adhere to this trend, but depends on gun ownership obviously, which is lower among the poor and very poor, and on traditions.

Table 16: The 10 most important household income sources, livestock and natural resources, from rural sample sites in different regions,			
Rank	**Khentie**	**Bulgan**	**Huvsgul**
1	Cashmere	Meat	Cashmere
2	Butter	Cashmere	Meat
3	**Pine Nuts**	Cream	Mixed Cream
4	**Pine tree**	Butter	**Cranberry**
5	Livestock skin and Milk	Dried Curd	Fat
6	**Blueberry**	Vodka	Skin and Dried Yoghurt **Fish** and **Pine**
7	**Hay** and **Larch**	**Wolf**	**Squirrel** and **Gold**
8	Hard cheese	Wool	**Larch**
9	Curd	**Pine Nuts**	Cream and Horse mane
10	**Red berry**	Sweat Cream	**Pine Nuts**
Data generation: from pairwise ranking exercises, of predominantly lower well-being discussants. For Bayankhongor (arid forest) Goyo, Wolf and Fox were mentioned for income generation. In Khangai, the resources most important for income generation were (at one sample site): pine nut, pine, squirrel, followed by larch and marmot, and by wolf and black currant. They were not pairwise ranked against livestock products there. However, experience from livelihood analysis there would suggest that pine, larch, pine nut, squirrel and marmot are among the 10 most important sources, and that pine, larch, nut are among the most important 5.			

Table 17: 10 most important forest resources for income generation, at rural sample sites in different regions					
Rank	**Khangai**	**Huvsgul**	**Khentie**	**Bulgan**	**Bayankhongor**
1	Pine Nuts Pine Wood Squirrel	Cranberry	Pine nut	Wild Boar	White Goyo Wolf
2	Larch Marmot	Pine	Pine wood	Pine Nuts Birch Mushroom	Fox
3	Wolf Black Currant	Squirrel Gold	Blueberry	Blueberry	
4		Larch Fish	Hay Larch	Wolf	
5		Pine Nuts	Red Berry	Bird Cherry	
6		Mushrooms	Black Currant	Fish	
7		Wolf	Bird cherry Prickly Rose		
8		Musk deer	“Apple”		
9		Coal Fox	Fish		
10		Birch	Squirrel		
Data generation: from pairwise ranking and matrix scoring exercises; ranks do not relate across different sites, but define significance of different resources in one site.					

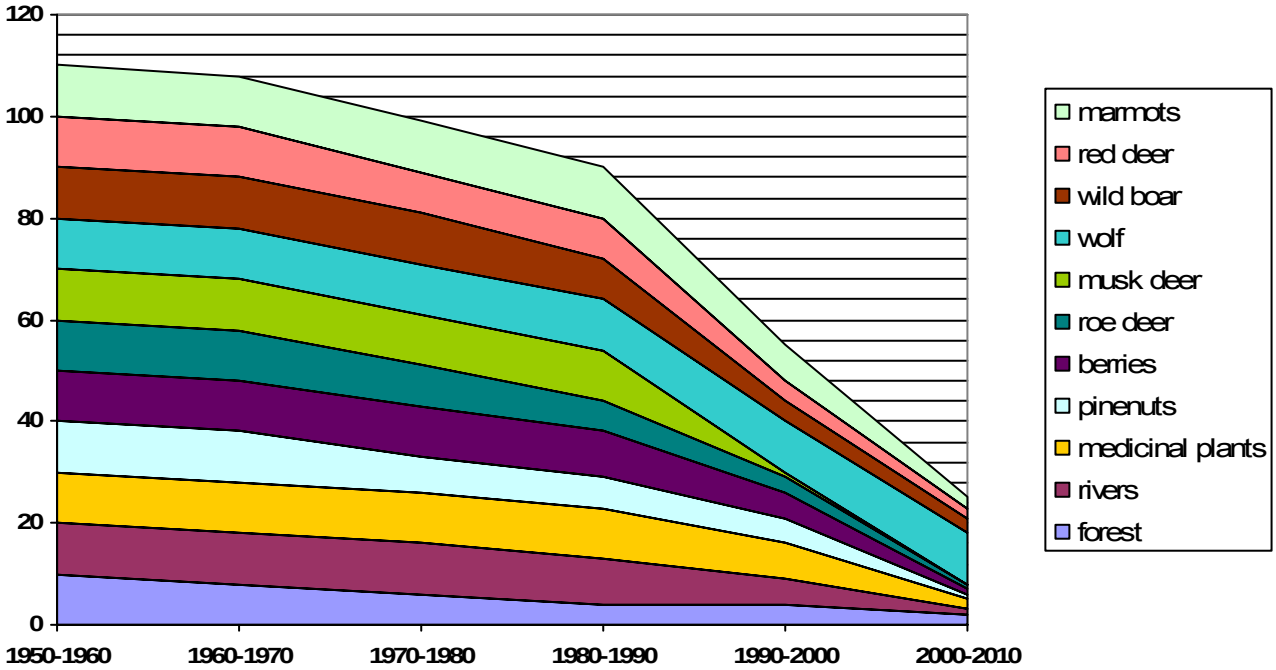
3.2. Trends of Resource Decline and Environmental Change

Trends of decline in wildlife populations described in other recent studies (World Bank 2005) were mirrored in the findings of the field studies. Table 20 lists all species and resources, in total approximately 250[1], that were named as being used for local

[1] This includes pasture plants separated by species for arid forest, and not separated by species for the

livelihoods. The only mammal species that local users usually considered not to be in decline, or even to be increasing, is wolf.

Fig. 6: Decline of Natural Resources since 1950ies, including anticipated situation until 2010, Based on "Changes and Trends of Natural Resources" discussed by workshop participants, Khangai.



Other changes, attributed to local and global anthropogenic origin, were described by local resource users. The decrease, and sometimes loss, of water sources was a very frequent change mentioned by discussants. It was attributed to mining activities, deforestation, land degradation through unsustainable grazing and to global temperature changes. Warming of the weather was reported in al cases the subject was discussed, and an increase of forest pests was also stated.

Changes in rejuvenation of forest species and encroachment of pastures by forest species is being observed by local communities in the taiga and maintain forest steppe. Larch forests were reported to re-grow with very dense stands of young trees, which was perceived as markedly different from previous conditions. Also, an increased growth of willows spreading from the edge of forests was reported, particularly in the Huvsgul study site. This is probably a result of increased soil moisture brought on by the melting of permafrost due to global warming. At the same time, rivers and streams were also here reported to be decreasing.

In the Khangai, herders described changes in pasture plant communities, with plant species typical for the Gobi becoming more common in their pastures, indicating much drier conditions.
The assessment of the severity of decline of resources for local livelihoods, particularly pastoral, by local communities was similar in the northern and arid

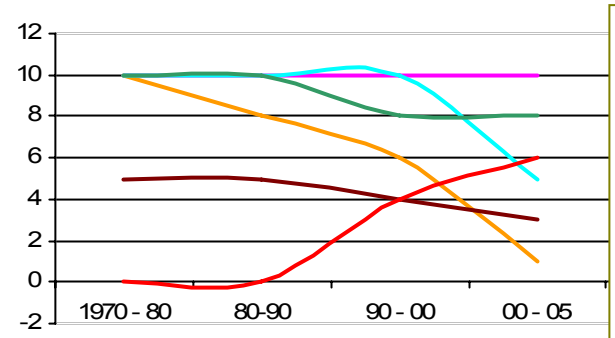
northern forest. If species of forage plants were listed for northern forest, the species list would be considerably longer.

forests. While in the northern forest the decline of water sources, loss of pasture areas through invasion by bushes was felt to impact pastoral practice, a direct link was evident in saxaul forest areas with the decline of species that serve as livestock fodder. Secondary effects of resource exploitation in the Saxaul forests were described as well, such as the effect on micro-climate through collection of Goyo, necessitating more labor intensive herding practices (see Box 6).

Box 6 - Resource Depletion and Impacts on Pastoral Practice in Arid Forest

Collection of Goyo, a parasitic plant with medicinal properties, is perceived to reduce moisture content in soil and air, thereby effecting local micro-climate and growth condition for Saxaul. In turn, a less healthier Saxaul forest is not able to provide windshelter for other pastures grazed by small livestock. As a result, herding becomes more labor intensive as livestock scatters easier and requires more attention or needs to graze in more distant pastures.

Most species were viewed as being in rapid decline after 1990, and this is particularly true for wildlife. Tree species in the northern forest and Saxaul of the arid forest, were harvested at a large scale already before. Timber harvesting on a large scale was well underway since the 1960s, when also the use of Saxaul for fuel began to rise significantly due to the increased number of motor vehicles in rural areas.



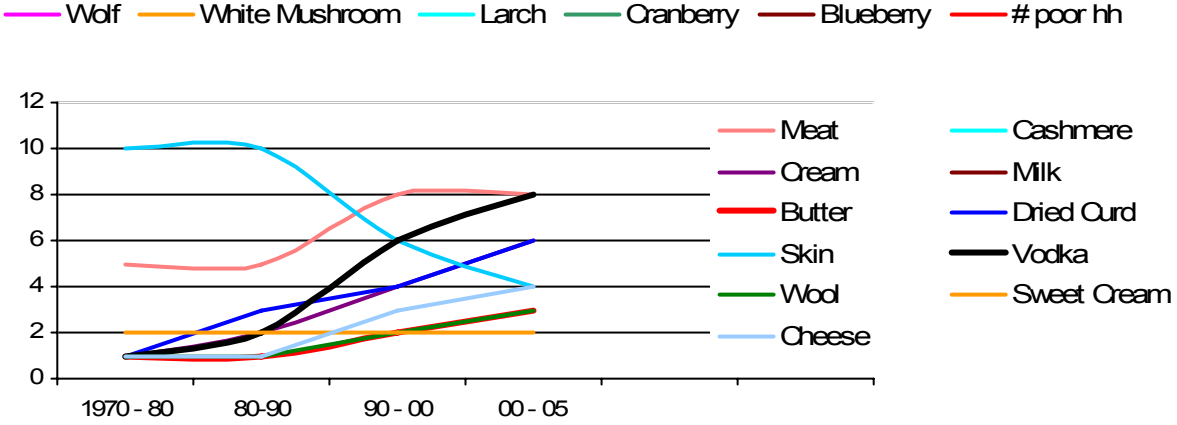


***Fig. 7 : Changes and Trends in Natural** Resources (declining) and Number of Poor Households (rising) from 1970 to 2005 (top), and in production/sale of livestock products. Bulgan Aimag Case Study. The estimated rise in Vodka, Milk and Cashmere production is scored exactly the same, therefore line for cashmere is masked, (black line is for vodka, milk and cashmere). The same goes for butter and wool (green, and red line under it). The only product declining in production/sale is skin.*

Several species already saw a peak of collection, and populations are likely to be very low now and nearing rare, endangered or threatened status, while for other species collection is building up, probably to peak soon until the resource is depleted. Cases to illustrate such trends are Musk Deer and Squirrel in the Huvsgul study site. For these species, collection was estimated to have dropped after 1995 and now thought to be very low or to have ended because of resource depletion. On the other hand, taking of bear, and collection of gold were depicted as recent trends, with significant rises in the last few years.

Changes in livelihoods, in relation to changes in resource abundance, were assessed similar in all sites. Local discussants expected household well-being to deteriorate and the number of poor households to increase (see example from Bulgan Aimag, Figure7). Decreased well-being was explained both with declining resource base, loss of access to resources, as well as with rise of prices for consumer goods and decline of sale prices for local products and resources.

3.3. Current governance of forest resources – enhancing disparities

Findings from the field studies suggested that the highest degree of illegal timber use occurred in forest zoned as "protected" in the Khangai, while timber harvesting was comparatively low in "utilization" forest in Huvsgul. This illustrates the inadequacies in current forest management policy and practice.

A closer look at the processes and structures at work reveals how counterproductive laws and regulations are to sustainable resource use and conservation, to poverty reduction and to rural development. Current law and enforcement practices in fact facilitate a resource and revenue drain from rural areas while failing to protect and build local assets. The laws, processes and power relations in place promote a flow of benefits away from the poor, who may be closest to the resource, towards the better-off, away from local households towards outsiders, away from communities towards corporations. Informal institutions are a key feature in current resource management and use while formal institutions remain weak.

Community organization, based on customary pastoral institutions for common property resource management, has seen a recent revival in rural Mongolia. A perceived lack of coordination of pastoral mobility, challenges for rural households in accessing credits, services and markets, devastating livestock losses during Dzud (severe winter weather) and rising consumer prices lead to a renewed interest in collective action after a period of distrust in any form of cooperation following socialist collectivization. Successes by community organizations in the Gobi, in improving pastoral resource management and livelihoods and in advancing other sectors including local governance, services and womens development, helped encourage community organization in other regions.

Various forms of community organizations and user groups exist in different regions, and they played an active role in participatory analysis for this study. These primary organizations have different names by region and objective. In the Gobi, herding households working together named themselves "Nukhurlul" (partnership, friendship group). Their group norms concern seasonal use of pasture resources, protection of water resources and reserve pastures, biodiversity conservation, fuel consumption, management of community funds including risk management funds and micro-credits. Their activities are far reaching including joint livelihood strategies in diversification and value addition. Moreover, they have developed strategies of community led poverty reduction which make them particularly important for poor and very poor households including those in rural centers. Most importantly however, is their function as local institutions for natural resource management, their link to common property resources.

In the Bulgan Aimag study site, groups of households, sharing seasonal pastures and moving together between their seasonal settlements, are called "Bul" (family). In areas with previously active forest industry and a contingent of forestry professionals, as in the Eastern Khentie, user groups established for participatory forest management are called "Khamtlag" (band). In the Khangai, community organization was recently prompted by conflicting interests of the local community and a mining company intending to operate in a forest area with important functions for local pastoral

livelihoods. In the Huvsgul study site, informal communal institutions as herders cooperate under customary rules, however, no recent revival of community organization was apparent.

A process of formalizing the different community based organizations is underway, driven by different donor supported programs that all recognize the significance of primary institutions as actors in pastoral and rural development and in resource conservation. Recent amendments to the Environmental Protection Law of Mongolia are better defining rights and responsibilities of local groups and describe their formal status, and community organizations as the "Nukhurlul" in the Gobi have been recognized in civil law.

An enabling legal framework however, to facilitate a flow of benefits to community organizations as the resource managers is still lacking. In the case of the "Khamtlags" in the Khentie, set up for forest management and having undertaken preparatory work such as mapping and forest inventories with the support of professional foresters, their effective operation has been prevented so far by existing tenure. Their management area is situated in "green zone" along a water course and in proximity to the rural center, and therefore their opportunities to benefit from forest resources are severely limited, leaving them without a real incentive to enter into regular activities.

While some of the aforementioned community organizations have formal contracts with local government giving them (pasture) resource use rights and management responsibility over a certain period, the majority of groups are still informal and without secure and long term tenure rights.

De facto, an open access regime is in place, enhancing disparities in livelihood outcomes. The inability of many local, particularly poor households, to add value to resources was described above. There are also significant disparities in access. Better-off households, local and non-local, with means of transportation are at an advantage to reach and market resources. Non-timber forest products can be harvested, with small fees imposed, by any outsider who can reach harvest areas.

In the face of the imposed timber harvest limitations according to annual allowable cuts, and of the increased price for permits, informal institutions play a significant role in accessing timber resources. It is very difficult for poorer households to afford the price of permits including a payment to the official issuing a permit, which may be within or exceeding allowed allocations. Better-off can afford the price for a regular permit as well as extra payments for false permits. Recent cases of conflicts between local communities and extractive industry are highlighting an emerging issue,- the threat to communities of loosing access to traditional resource use to corporate interests. Other current practices, such as large scale harvesting of medicinal plants by pharmaceutical companies, and tourist operations based on local natural values, both with little or no benefit to local areas, are another example for open access use and disparity in benefit.

Informal institutions are likewise a key mechanism in marketing the resource. For timber, regular informal supply networks are functioning, connected to local traders and most likely, at least in some sites, to local government officials who sell timber that has been confiscated, or that stems directly from harvests exceeding the legal

limit. Informal networks of traders and "changers" are also responsible for much of the wildlife trade and trade with plants for medicinal purposes.

Formal institutions, on the contrary, have little standing. Rangers and inspectors lack training, support from their own line agencies, transport, and equipment to perform their duties in monitoring and enforcement of rules and regulations on resource use.

While lack of tenure rights prevent communities, particularly the poor, to access their potential assets, and to benefit from natural resources, legislation and regulations also prevent local governments to generate revenue from local resources. And while law enforcement is not effective when it concerns the protection of local resources and the flow of revenue to the local level, the law is enforced when it serves to transfer revenue gained from local resources to provincial and central level.

Fiscal regulations that require local governments to generate revenue both for their own budget as well as for the provincial budget exert pressure to overexploit local resources by selling them for revenue generation. Moreover, the mechanism of generating local government revenue through imposing fines and penalties for illegal resource use tends to perpetuate illegal use. This is apparent when in budget preparations considerable amounts are planned in advance to be raised through collecting fines for illegal activities.

Tax regulations and resource use fee rules, along with inefficiencies in their implementation, further promote trends of impacting local areas through resource extraction while failing to promote a flow of benefits to local areas. More and more, local areas are left cash-strapped and with declining resources, or even with grave environmental impacts through unsustainable and irresponsible practices of resource extraction in mining, logging, hunting and plant collection.

Box 7 - Revenue Drain from Local Government, to Provincial and Central Government –Case Study Khentie

Approximately 50 % of locally collected taxes and fees go to Aimag and Central Government. Of the remaining income for the district (Soum), nearly 30 % depend directly on natural resources, and a portion of this depends on illegal activities

Natural Resource use fees, in case of large scale timber operations, were found to not contribute to the district, but to the provincial budget, secondary natural resources use fees for non-timber forest product collection goes to the provincial budget as well, and taxes paid by mining, agricultural and tourism companies operating in local areas were found to go to the central budget. For other fees, such as water use fee, a local mining company was said to have defaulted on due payments. Local government officials and resident also report the lack of rehabilitation of land after mining operations, and lack of reforestation after timber harvesting, both of which is an obligation by law, but compliance is low.

Moreover, percentages of natural resource use fees paid to the central budget that by law should be transferred to local budgets, are frequently not received by local

government, according to government officers. Fees for Taimen fishing licenses were mentioned as an example for this type of failure in law adherence.

Law enforcement failures further facilitate illegal trade with timber and non-timber resources. Budgetary constraints render efforts inefficient, and the involvement of law enforcement agencies in the trade, or their complacency in return for profit sharing has also been alleged by local government, particularly with regard to provincial level law enforcement personnel. Enforcement of lawful procedures is also failing with regard to ensuring harvest of timber at allocated sites. In general, a lack of transparency in setting allowances, issuing permits and in selling resources that have been confiscated by government was reported at all sites by participants in local meetings.

As a consequence of significant profits as well as public revenue leaving local areas, there is little investment in rural infrastructure or services, and rural development does not gain from the resource use.

Local communities' perceptions about the relevance, responsiveness and accessibility of rural services and government is characterized by limited access to important services, such as health care and rural finance, lack of access to information, lack of responsiveness of government organizations. A general trend is that poorer households perceive the bag governor as relatively "close", while they perceive little attention from elected representatives in legislative bodies, and poorer households list fewer institutions that are relevant for their lives than better-off households. Notably, soum and aimag government organizations, are placed during visualization exercises by both poor and non-poor rural households in the outermost sphere, attributing least relevance to them of all organizations listed. The "closest" institutions are typically bag governor, School, Bag doctor, bank, and the various forms of primary community organization. Table 18, depicting the perception of "distance/relevance" of local institutions by local households, poor and better-off, in Teshig Soum of Bulgan Aimag, represents a rather common situation.

Table 18 : Institutions and their relevance as perceived by representatives of local households. Discussed in separate groups of poor and better-off households, rural site, Bulgan Case Study. 1 – "closest/most relevant" 4 – "furthest/least relevant" for local households

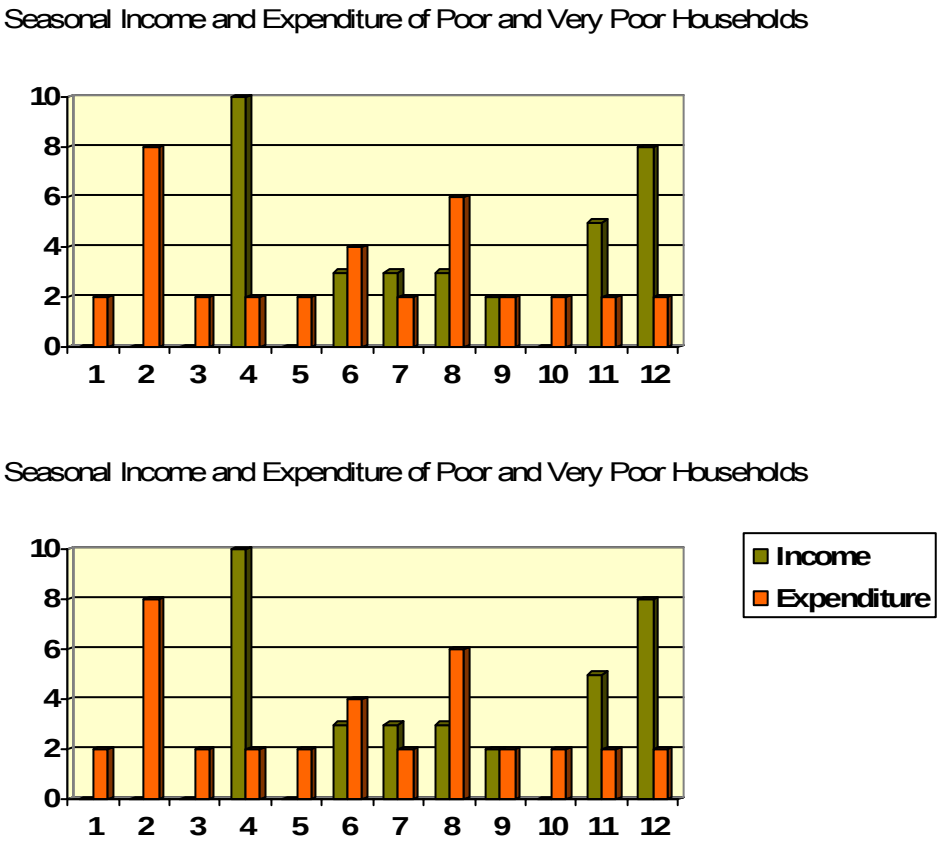
	Poor Households	**Better-off Households**
1.	Bag Governor	
2.	School, Bag Doctor, Agricultural Bank	School, Hospital, Ranger, Shop, Bank, Post
3.	Trader, Veterinarian, Environmental Inspector, Soum Shop, World Vision Project	Trader, Environmental Inspector World Vision Project
4.	Aimag Government Soum Governor	Bag Governor, Soum Government, Soum Administration, Aimag Government Member of Parliament

3.4 Vulnerabilities – access to land and resources

The vulnerability of rural households due to environmental insecurities (Dzud, drought) is well known and documented; it is exacerbated by inefficiencies in rural services described above.

Seasonal calendars of income and expenditure prepared by workshop participants in all study sites illustrate a distinct seasonal vulnerability, when income is low or zero, expenditures are high, while access to credit is difficult or impossible. This situation is faced by households in all regions, and is worst for the poor.

Fig. 8: Seasonal Income and Expenditure Pattern, for lower and higher well-being group, from a rural site. Case Study Bulgan Aimag. Representative for all rural areas. Typically, peaks in income in spring are from cashmere, in summer from milk products, in winter from milk, meat, skins. Peaks in expenditure are before Tsagaan Sar (Lunar New Year), and for back-to-school preparations for children.



However, in discussions at all study sites local households named as the greatest vulnerability they perceive for their livelihoods the threat of loosing access to land, due to other land-use, including for extractive industry described above, and due to "high position people taking the land" (quote of discussant in Huvsgul). While this is not widespread yet, the emerging issue of access to land and other common use resources, is recognized by local communities. This highlights the significance of developing tenure security, as a key element for sustainable livelihoods, both in pastoral and forest resource management.

Table 19: Timeline of Events, Khangai Case Study, illustrating vulnerabilities of local livelihoods due to environmental insecurity and lack of tenure security.

Time	Events
1961	Sawmill started
1965	Hoof and mouth disease
1978	Big fire
1979	Fire
1980	Fire, Logging by prisoners and soldiers of 151st border military.
1982-1983	Dzud harsh winter
1987-1988	Dzud
1993	Dzud
2000-	Dzud
2001-	Drought
2002-	Fire, and drought
2003	Fire
2003-2004	Dzud and drought
1993 to now	Selling Musk deer, red deer, marmots, squirrel, and pine nuts to China
1999	“Mongol Gazar”- gold mining company came
2000	“Altan Dornod” –gold mining company came

4. IMPROVING ECOSYSTEM MANAGEMENT AND BUILDING LIVELIHOOD ASSETS - CONCLUSIONS AND RECOMMENDATIONS

The perceptions and experiences of local communities, and the rural poor, on forest resource use have provided an insight into dimensions of rural poverty, both in the country side and in rural centers. Poverty is defined by the inability to derive significant benefits from natural resources, due to the lack of access, and the lack of ability to add value and to reach markets. The poor in rural Mongolia use resources to generate low and temporary incomes, or survive immediate crisis situations, but they don't build livelihood assets. The situation mirrors that in many countries. "Usually, the poor use environmental income more as a support for current levels of consumption or as a safety net to keep from falling further into poverty. They generally do not have the means or empowerment to use environmental income as a tool for true wealth creation." (WRI 2005, page 53).

4.1 Building social capital first

Our studies of livelihood strategies and outcomes, and of the underlying processes and structures, along with experience of ongoing community organization in Mongolia, underline that social capital is not only a precondition for communal tenure rights, but key to developing other livelihood assets. Social organization will be the precondition to both accessing natural capital through gaining communal resource rights, and for maintaining and building natural capital through improved ecosystem management through consensus and cooperation of members.

Experience has shown how enhanced social capital will facilitate access to financial and physical capital, the lack of which was found to be a main barrier to adding value to wild resources and reaching markets, and thus to enable the poor to "efficiently tap the productivity of the ecosystem". An important mechanism in this context is community funds that provide a rural micro-finance mechanism where banks and non-banking financial institutions fail or struggle to reach the target group. Enhanced social capital will also reflect positively on human capital, by enabling communities to better access services such as health care and education, as impact assessments of community organization have shown.

Human capital, in the form of professionals formerly employed in forestry as well as local knowledge and skills on traditional use of resources add to the human capital is to be mobilized, as well as enhanced through further training in forestry, natural resources management and conservation, as well as other skills for livelihood strategies and organizational development.

Different organizational forms of local communities and resource use groups have been described. Most however, still lack strong social coherence and organizational development. This sequencing of asset building, with social capital development being a crucial initial step, is important in the process towards more sustainable livelihoods and in developing pro-poor forest governance.

4.2 Valuing forest resources

Policy development for forest governance in Mongolia has to consider not only resource rights for local communities, particularly the rural poor, but it has to take into account the total value of resources, as well as the multitude of forest functions in pastoral livelihoods

Currently, the potential total resource wealth for the poor is undervalued, the reliance of local livelihoods on ecosystem services sometimes disregarded, and the value of ecosystem services on a regional or national basis not taken into account fully. A knowledge gap exists on the potential environmental income for local communities and on the economic gain for rural areas if local communities, endowed with resource tenure, were able to realize resource and ecosystem values more efficiently and if the legal framework was more conducive to promoting benefits to local revenue.

Striking examples that hint at values of resources for the poor are the equal ranking for household income generation, of gold and pine nuts, or gold and squirrels, as encountered in the field studies (see table 18).

4.3 Recognizing mobile pastoral custodianship of forest resources

In the discussion on governance of forest resources, the important role of arid forest in pastoral livelihoods based on the significance of key species as pasture plant for both camel and small livestock, and the participation of local pastoral communities in the collaborative management of arid forests is easily understood and acknowledged.

However, the role of northern forests in traditional pastoral practice is equally important. Pastoral communities' use of forests, as traditional reserves, winter pasture and places of worship have been described above. The findings illustrate the important role of forests in pastoral land use, and thereby the important role of pastoralists in participatory forestry implementation. The exclusion of the traditional resource users, the nomadic and semi-nomadic livestock herders, from community based forest management, is conceptually incoherent. It would exclude them from access to important resources and environmental services, such as reserve pasture, watersheds, wood supplies for household and herding needs, as well as disenfranchise them and make them potential collaborators in illegal activities.

Forest resources are an integral part of the resource base herder communities rely on, are connected with and concerned about. Speaking about the losses they are threatened with, a local herder in Tsenkher Soum of Arkhangai, where communities of Tsetserleg Bag have taken action to defend their access to resources against mining operations, expressed their priorities: " If you have to take something from us, take our livestock, just leave us a horse for riding, but do not take our nature" by which he meant the forested valley of Nariin Khamar with important water sources, reserve pastures and places of worship that is under dispute. It takes a lot to make a Mongolian herdsman say "take our livestock", but this quote conveys the connection of herders to the land and its resources, and of course the understanding of these resources as the basis of livestock husbandry and thereby their livelihood.

Another point is in favor of pastoralist involvement: As it has been argued above, social organization and community collaboration will be a crucial precondition for granting resource tenure and successfully implementing collective resource management. Pastoral communities, as has been described in the introduction, retained aspects of customary local institutions and have been reviving these in the past decade after the collapse of former state-driven collectives created a vacuum of institutions for natural resource management and pasture use coordination. Pastoral communities may be the most advanced in community organization, through support of various technical assistance programs and spurred by fear of loosing access to resources as in the Nariin Khamar case. These pastoral communities have greater social coherence than the populations in the more typical forest industry regions such as the Western Khentie region and Selenge Aimag, where a large portion of population consists of replaced people, or their descendants, who were brought there as a workforce in state-run commercial forestry. A notable lack of knowledge in traditional resource use has been reported from such areas (Hartwig 1998).

The findings from the field presented here may also further contribute to a better understanding of mobile peoples' role in conservation. While livestock grazing has often been blamed for environmental degradation and threat to biodiversity, based on an underlying lack of understanding of mobile pastoralism, our findings evidence that indeed the grave loss of livestock has had an devastating effect on biodiversity in Mongolia, that may be cause for more concern than present land-degradation through unsustainable land-use, primarily through loss of pastoral mobility.

4.4 Securing tenure and rights

While communal tenure rights will be the primary precondition to develop livelihood assets and better ecosystem management, they do not suffice in the face of current practice of resource access and use. Other rights issues are emerging. To safeguard against the vulnerability of rural communities of loosing access to their resource base or suffer environmental impacts through other land-use forms, the principle of "free, prior and informed consent" with regard to proposals for land-use that effect the livelihoods of local communities should be considered for inclusion in the legal framework. Extensive international experience on the subject is available, and donor organizations are actively involved in facilitating dialogue and contributing to discourse.

Moreover, the issue of protection of intellectual property rights for local and traditional knowledge, and genetic resources, needs to be addressed. Local knowledge holders, particularly on native plants and their medicinal properties, at present hold no rights and the benefits they gain from commercial use of medicinal herbs is minute compared to prices commanded for end products even on the domestic market, as examples above have illustrated. Bio-prospecting and use of native plants in the international market, an increase of which can be expected, has not even been addressed in this study. Conservation of genetic resources and protection of intellectual property rights is relevant in Mongolia for both wild and domestic biodiversity.

4.5 Improving local governance

Informal institutions, power relations and shortcomings in law enforcement as described above, and the perception of local communities, in particular poor households, of the responsiveness of government organizations, point to the necessity to improve accountability and transparency. An extra effort will be necessary to enable participation in environmental decision making especially of the poor, who depend for their livelihood on forest resources but are limited in participation through lack of information, of understanding of their rights, and of time and resources to engage in decision making processes let alone in legal proceedings.

4.6 Review poverty reduction strategies and policies

While the findings presented here are primarily to inform development of a legal framework for community based natural resource management, their relevance for current policies and strategies on poverty reduction, in particular the Economic Growth Support and Poverty Reduction Strategy (EGSPRS), which recognizes "outstanding challenges in the environment aspects" ((World Bank 2003) may be considered.

Table 20 a Complete List of Species used for Local Livelihoods in Northern Forest			
Mongolian name	English name	Scientific name	Used for
Wildlife			
Õÿðñ	Corsac fox	Vulpes corsac	Selling Skin
Øàð ¿íýã	Red fox	Vulpes vulpes	Selling skin
Çóðàì	Ground squirrel	Citellus ungulates	
Íîõîé çýýõ	Wolverine	Gulo gulo	Selling Skin
Õ¿ðýí áàâãàé	Grizzly bear	Ursus arctos	Medicine (gland), selling skin
Äîðãî	Badger	Meles meles	Medicine (fat, meat)
Íîõîé ýëáèíõ	Raccoon dog	Nuctereutes procyonoides	Seling Skin
Õàëèó	Otter	Lutra lutra	
Ìàíóóë	Pallas Cat	Felis manul	Selling Skin
Õàäíû ñóóñàð	Stone marten	Martes foina	Selling Skin
Ñîëîíãî	Mountain Weasel	Mustela altaica	Selling Skin
Îéí áóëãà	Sable	Martes zibellina	Selling Skin
Øèë¿¿ñ	Lynx	Felis lynx	Selling Skin
Ñààðàë ÷îíî	Gray wolf	Canis lupus	Medicine, export to China,
Áàðààí õýðýì	Typical squirrel	Scuirus vulgaris	Selling skin
Æèðõ	Chipmunks	Tamias sibiricus	
Ìîíãîë òàðâàãà	Siberian marmot	Marmota sibirica	Eat, Export to China and Russia
Áîð ãºðºñ	Roe deer	Capreolus pygargus	Medicine (blood)
Áàäàíãà õ¿äýð	Siberian musk deer	Moschus moschiferus	Sell musk
Õàëèóí áóãà	Red deer	Cervus elaphus	Sell antler, testicles
Áîð òóóëàé	Hare	Lepus tolai	Medicine for intestine
Çýðëýã ãàõàé	Wild boar	Sus scrofa	Eat, sell meat
Fish			
Öàãààí çàãàñ	Siberian whitefish	Coregonus lavaretus	Eat, sell

Çýâãý	Lenok	Brachymystax lenok	Eat, sell
Òóë	Taimen	Hucho taimen	Eat, sell
Öóðõàé	Pike	Esox lucius	Eat, sell
Birds			
Òàñ	Vulture	Aegypius monachus	
Ñàð	Hawk	Buteo buteo	
Åðäèéí ñîéð	Wood grouse	Tetrao urogallus	Medicine
Øàð øóâóó	Owl	Bubo bubo	Medicine
ßòóó	Daurian Partridge	Perdix dauuricae	Medicine for tiredness
Õóð	Black Grouse	Lururus tetrix	Medicine
Àëòàéí õîéëîã	Altai Snowcock	Tetraogallus altaicus	Medicine for wound treatment
¨ë	Lammergeyer	Gypaetus barbatus	
Õîòîíû á¿ãýýõýé	Little Owl	Athene noctua	
Óðàí øóâóó	Winter Wren	Troglodytes troglodytes	"When in a family children die they bring nest of this bird"
Áýãääàòàð	Ural owl	Strix uralensis	
Trees and bushes			
Îéí íàðñ	Scotch pine	Pinus silvestris	Furniture, sell, firewood
Ñèáèð õóø	Siberian pine	Pinus pumila	Construction, sell, firewood
Ñèáèð øèíýñ	Siberian larch	Larix sibirica	Construction, sell
Àíõèëóóí óëèàñ	Poplar	Populus suaveolens	Fire wood
Õàâòàãà íàâ÷èò õóñ	Birch	Betula platyphylla	Household, saddle trees
Ñèáèð æîäîî	Siberian fir	Abies sibirica	Firewood
Ñèáèð ãàöóóð	Spruce	Picea obovata	Firewood
Ø¿¿äýðò áóðãàñ	Gray willow	Salix rorida	Firewood, ger wall
ßðãàé		Cotoneaster mongolicus	Firewood
Berries			
Àíüñ	Cranberry	Vaccinium vitais idaea	Food, sell
¯õðèéí í¿ä	Black current	Ribes nigrum	Food, sell

Íýðñ	Blueberry	Vaccinum uligonosum	Food, sell
Íîõîéí õîøóó	Prickly rose	Rosa acicularis	Medicine
Óëàäëçãàíà	Red current	Ribes diacantha	Food, sell
Ã¿çýýëçãýíý	Straw berry	Fragaria orientalis	Food
Õàä /Óëàäãàíà/	Red berry	Ribes altissimum	Food, sell
Áºðºëçãºíº	Stone bramble	Rubus sachalinensis	Food, sell
Àëèì ºðºë	Apple species	Malus baccata	Food
Äîëîîãîíî	Hawthorn	Carataegus sanguine	Food, sell
Nuts			
Ñàìàð	Pinenuts		Food, sell
Medicinal plants			
Àëòàí õóíäàãà	Pheasant's eye	Adonis mongolica	Medicine,
Àðö	Juniper	Juniperus sibirica	Incense
Õ¿íõýýë	Onion	Allium schoenoprasum	Food
Øàð äýãä	Genttian sp.	Gentiana acuta	Medicine
Õºõ äýãä	Genttian sp.	Gentiana barbata	Medicine
Ýìèéí ñºä	Burnet	Sanguisorba officinalis	Medicine- intestine
Чаг мөөг	Birch mushroom		Medicine for stomach, cancer treatment
Öàãààí ìºã	Horse mushroom	Psalliota arvensis	Medicine for womens diseases
Òàâàí ñàëàà	Plantain	Plantago depressa	Medicine for stomach
Ãîíëä	Common dill	Carum carvi	Food
Áðåã	Thlaspi	Thlaspi cochleariforme	Food
Øóóöàé /õàëèàð/	Onion sp.	Allium microdyction	Food
Ñîíãèíî	Wild onion	Allium altaicum	Food
Ìàíãèð	Onion sp.	Allium senescens	Food
Öýýíý	Peony	Geranium lactiflora	Medicine for tiredness
Àëòàí ãàãíóóð	Rhodiola	Rhodiola quadrifida	Medicine for wound treatment
Äàëü	Rose bay	Phododendron dahuricum	Medicine

Þìä¿¿æèí	Pink	Dianthus superbus	Medicine for womens diseases
Òàðâàãàí øèéð	Thermopsis	Thermopsis alpina	Medicine for cold
Áýðèø	Thorough-wax	Burleurum	Medicine
Ìýõýýð /òàðíà/	Jointweed	Polygonium	Food
Õàëãàé	Nettle	Urica angustifolia	Food and wash hair
Öàðâàí	Mugwort	Artemisia xerophytica	Medicine for cold
Óäâàë	Columbine	Trollius asiaticus	Medicine-blood
Èã¿¿øèí		Cacalia hastata	Medicine-liver
Âàíñýìíáð¿¿		Saussurea involucrata	Medicine-lung
Õ¿ìõýýë ñîíãèíî	Chive	Allium schoenoprasum	Food
Óóë ºâñ	Edelweise	Leontopodium leontopodiodes	Medicine –for gland
Ýìèéí áàìáàé	Valerian	Valeriana officinalis	Medicine-back, leg,
Ãèø¿¿íý	Rhubarb	Rheum undulatum	Medicine-digestion
ßãààí óíàãàí ò¿ð¿¿		Pyrola incarnata	Medicine for kidney and lung
Öàãààí òºiñ	Water-lily	Lilium pumilum	Medicine-cold
Áàäààí		Bergenia moench	Medicine
Øàð õóàéñ	Siberian pea tree	Caragana arborescens	Medicine, flowers for tea
Ø¿¿ð ºâñ	Poa	Poa botryoides	Making brooms
Õàäíû õàã	Stone Lichen	Parmelia conspersa	Medicine for stomach
Òàéíû øàð öýöýã	Labrador tea	Ledum palustre	For tea
Õºâºí îðîéò	Fire weed	Epilobium angustifolium	For tea
Àãü	Thorowax	Artemisia frigida	Livestock
Ãíîüä	Caraway	Carum carvi	Food
Ãàíãà	Thyme	Thymus lamiaceae	Wash hair
Òýìýýí ñ¿¿ë		Caragana jubata	Fire wood
Plants			
Õºì¿¿ë	Mongolian onion	Allium mongolicum	Food, and Livestock
Áîð áóäàðãàíà		Salsola passerina	Firewood, and livestock
Áàãàëóóð	Anabasis	Anabasis brevifolia	Firewood, livestock fodder

Äýðñ	Achnatherum	Achnatherum splendens	Broom making
Òààíà	Onion sp.	Allium polyrrhizum	Livestock fodder
Õÿëãàíà	Stipa	Stipa gobica	Livestock fodder
Çàã	Saxaul	Haloxylon ammodendron	Firewood , camel fodder
Óëààí áóäàðãàíà	Reamuria	Reaumuria soongarica	Firewood, camel fodder
Ìîäëîã áóäàðãàíà	Salsola	Salsola arbuscula	Firewood , camel fodder
Øàð áóäàðãàíà	Kalidium sub-shrub	Kalidium foliatum	Firewood
Öàãààí ãî¸î	White goyo	Cynomrium sp.	Export to China for medicine
×îíîí õàðìàã	Niter bush	Nitraria sibirica	Making jam and wine
Öàãààí õàðìàã	Nitraria bush	Nitraria Roborovskii	Food
Óëààí ãî¸î		Cynomorium soongaricum	Food, make wine, vodka
Ëóóëü	Chinopodium	Chenopodium album	Livestock Fodder
×èõýð ºâñ		Glycyrrhiza uralensis	Export to China for medicine
Äàëàí òîâ÷	Rock jasmine	Androsace incana	
Ãîâèéí òîñò	Brachanthemun	Brachanthemum gobicum	Livestock fodder, Medicine
Öóëüõèð		Agrophylum pungens	Food
Îðîã òýñýã		Eurotia ceratoides	Firewood
Õàìõóóë	Bassia	Corispermum tylocarpum	Livestock Fodder
Àãü		Artemisia frigida	
Áàæóóíà		Rheum nanum	Food
Õàðãàíà	Pea shrub	Caragana tibetica	Fire
Ñóõàé	Reaumuria	Tamarix ramosissima	Magical care
Øàðèëæ	Sagebrush	Artemisia adamsii	Livestock Fodder
Òàâàí ñàëàà	Plantain	Plantago depressa	
Õºõ òàðèà	Barley	Hordeum	Food
Á¿äí¿¿ð		Helictotrichon schellianum	
Òîøëîé	Goose berry	Grossularia acicularis	Food

Wildlife			
×îíî	Wolf	Canis lupus	Sell, Export to China for Medicine
¯íýã	Red fox	Vulpes vulpes	Selling skin
Öàãààí çýýð	Mongolian gazelles	Procapra gutturosa	meat
Õàð ñ¿¿ëò çýýð	Black tailed gazelles	Gazella subgutturosa	meat
ßíãèð ÿìàà	Ibex	Capra sibirica	Food, Meat
Àðãàëü õîíü	Wild sheep	Ovis ammon	Food, meat; horn sell to China
Òóóëàé	Hare	Lepus tolai	Medicine
Õÿðñ	Corsac fox	Vulpes corsac	Selling Skin

Table 20 b Complete List of Species used for Local Livelihoods in Arid Forest			
Mongolian name	English name	Scientific name	Used for
Plants			
Õºì¿¿ë	Mongolian onion	Allium mongolicum	Food
Áîð áóäàðãàíà		Salsola passerina	Firewood
Áàãàëóóð	Anabasis	Anabasis brevifolia	Firewood
Äýðñ	Achnatherum	Achnatherum splendens	
Òààíà	Onion sp.	Allium polyrrhizum	Livestock fodder
Õÿëãàíà	Stipa	Stipa gobica	Livestock fodder
Çàã	Saxaul	Haloxylon ammodendron	Firewood
Óëààí áóäàðãàíà	Reamuria	Reaumuria soongarica	Firewood
Ìîäëîã áóäàðãàíà	Salsola	Salsola arbuscula	Firewood
Øàð áóäàðãàíà	Kalidium sub-shrub	Kalidium foliatum	Firewood
Öàãààí ãî¸î	White goyo	Cynomrium sp.	Export to China for medicine
×îíî õàðìàã	Niter bush	Nitraria sibirica	Food
Öàãààí õàðìàã	Nitraria bush	Nitraria Roborovskii	Food
Óëààí ãî¸î		Cynomorium soongaricum	Food, making wine
Ëóóëü	Chinopodium	Chenopodium album	Livestock Fodder
×èõýð ºâñ		Glycyrrhiza uralensis	Medicine
Äàëàí òîâ÷	Rock jasmine	Androsace incana	

Ãîâèéí òîñò	Brachanthemun	Brachanthemum gobicum	Medicine
Öóëüõèð		Agrophylum pungens	Food
Îðîã òýñýã		Eurotia ceratoides	Firewood
Õàìõóóë	Bassia	Corispermum tylocarpum	Livestock Fodder
Àãü		Artemisia frigida	
Áàæóóíà		Rheum nanum	Food
Õàðãàíà	Pea shrub	Caragana tibetica	Firewood
Ñóõàé	Reaumuria	Tamarix ramosissima	“Magic”
Øàðèëæ	Sagebrush	Artemisia adamsii	Livestock Fodder
Òàâàí ñàëàà	Plantain	Plantago depressa	Medicine
Õºõ òàðèà	Barley	Hordeum	Food
Á¿äí¿¿ð		Helictotrichon schellianum	
Òîøëîé	Goose berry	Grossularia acicularis	Food
Wildlife			
×îíî	Wolf	Canis lupus	Medicine (meat, organs) selling skin, take to protect livestock
¯íýã	Red fox	Vulpes vulpes	Selling skin
Öàãààí çýýð	Mongolian gazelles	Procapra gutturosa	Food, meat
Õàð ñ¿¿ëò çýýð	Black tailed gazelles	Gazella subgutturosa	Food, meat
ßíãèð ÿìàà	Ibex	Capra sibirica	Food, Meat
Àðãàëü õîíü	Wild sheep	Ovis ammon	Food, meat. Selling horns to China
Òóóëàé	Hare	Lepus tolai	Medicine
Õÿðñ	Corsac fox	Vulpes corsac	Selling Skin

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Further information about the LSP

The Livelihood Support Programme (LSP) works through the following sub-programmes:

Improving people's access to natural resources
Access of the poor to natural assets is essential for sustainable poverty reduction. The livelihoods of rural people with limited or no access to natural resources are vulnerable because they have difficulty in obtaining food, accumulating assets, and recuperating after shocks or misfortunes.

Participation, Policy and Local Governance
Local people, especially the poor, often have weak or indirect influence on policies that affect their livelihoods. Policies developed at the central level are often not responsive to local needs and may not enable access of the rural poor to needed assets and services.

Livelihoods diversification and enterprise development
Diversification can assist households to insulate themselves from environmental and economic shocks, trends and seasonality – in effect, to be less vulnerable. Livelihoods diversification is complex, and strategies can include enterprise development.

Natural resource conflict management
Resource conflicts are often about access to and control over natural assets that are fundamental to the livelihoods of many poor people. Therefore, the shocks caused by these conflicts can increase the vulnerability of the poor.

Institutional learning
The institutional learning sub-programme has been set up to ensure that lessons learned from cross-departmental, cross-sectoral team work, and the application of sustainable livelihoods approaches, are identified, analysed and evaluated for feedback into the programme.

Capacity building
The capacity building sub-programme functions as a service-provider to the overall programme, by building a training programme that responds to the emerging needs and priorities identified through the work of the other sub-programmes.

People-centred approaches in different cultural contexts
A critical review and comparison of different recent development approaches used in different development contexts is being conducted, drawing on experience at the strategic and field levels in different sectors and regions.

Mainstreaming sustainable livelihoods approaches in the field
FAO designs resource management projects worth more than US$1.5 billion per year. Since smallholder agriculture continues to be the main livelihood source for most of the world's poor, if some of these projects could be improved, the potential impact could be substantial.

Sustainable Livelihoods Referral and Response Facility
A Referral and Response Facility has been established to respond to the increasing number of requests from within FAO for assistance on integrating sustainable livelihood and people-centred approaches into both new and existing programmes and activities.

For further information on the Livelihood Support Programme,
contact the programme coordinator:
Email: LSP@fao.org

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